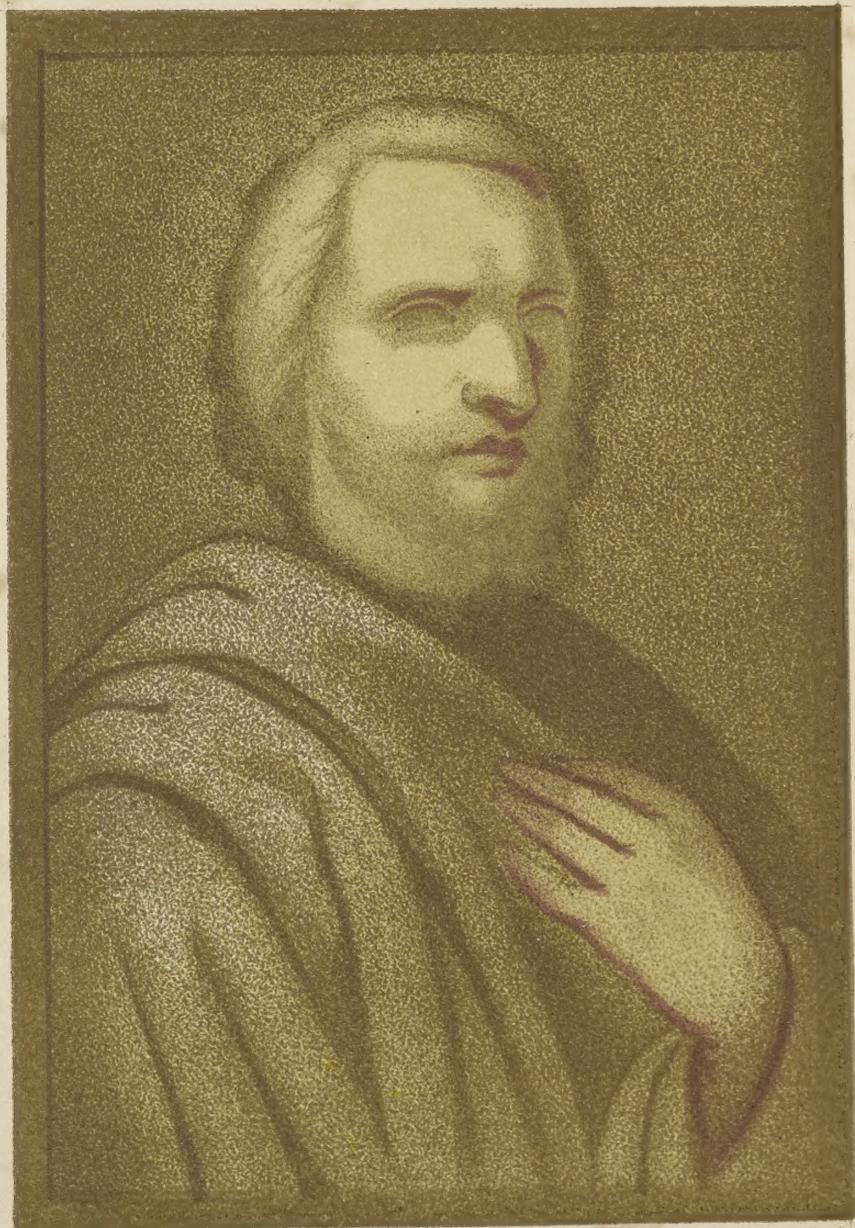


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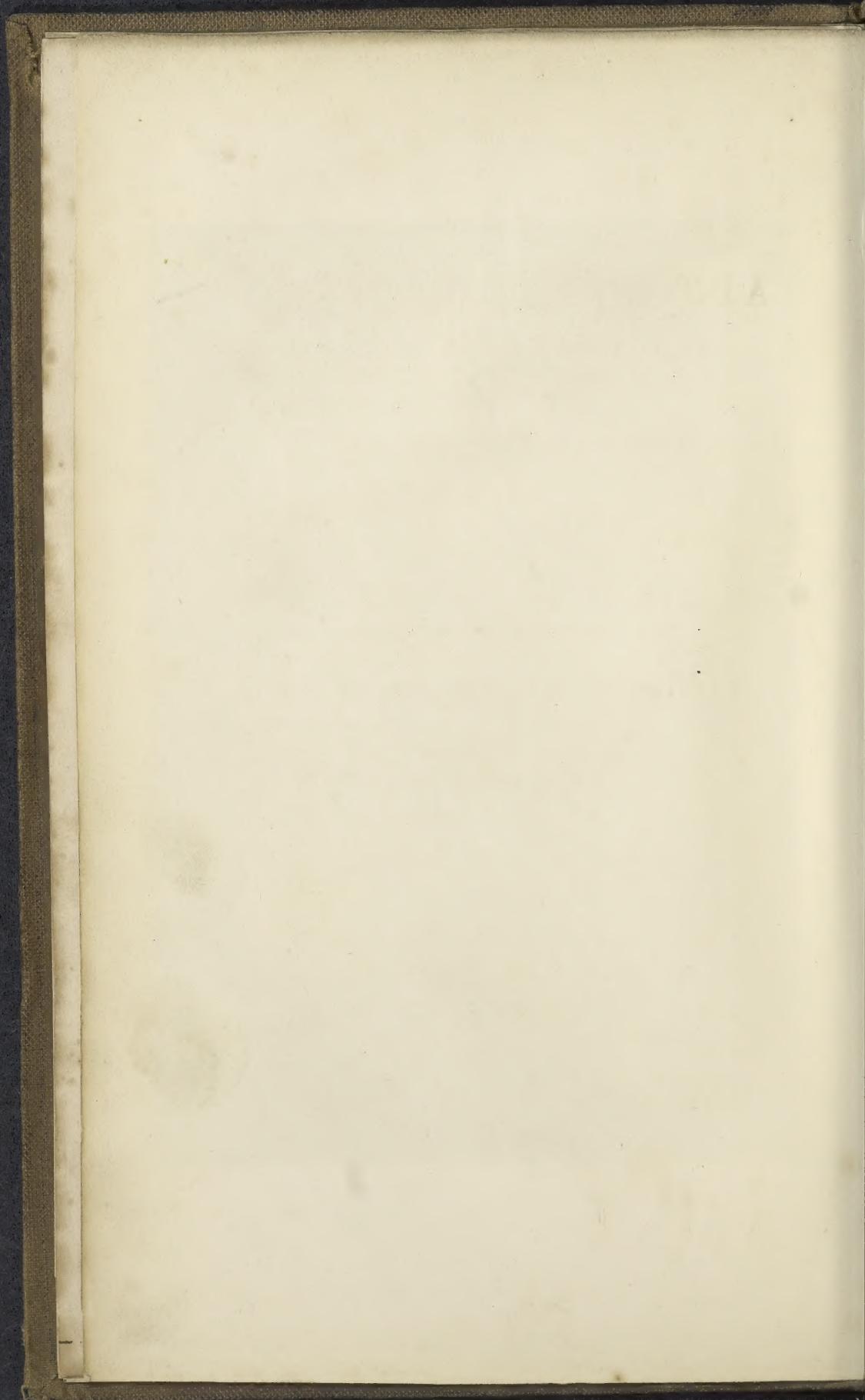
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THE  
ART OF PAINTING

RESTORED TO ITS

*Simplest and Surest Principles.*

TRANSLATED FROM THE GERMAN OF

LIBERTAT HUNDERTPFUND.

ILLUSTRATED WITH COLOURED PLATES.

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## TRANSLATOR'S PREFACE.

“A DREAD of, nay, a decided aversion for all theoretical views respecting colour, and everything belonging to it, has been hitherto found to exist among painters—a prejudice for which, after all, they were not to be blamed—for what has hitherto been called theory, was groundless, vacillating, and akin to empiricism. We hope that our labours may tend to diminish this prejudice, and stimulate the artist practically to prove and embody the principles that have been explained.”—*Goethe's Theory of Colours, translated by Eastlake*, — 900.

IT is not a little remarkable, that a philosophical theory of colour applicable to the art of painting, has never, during the long period of its history, been educed by those engaged in its practice. Many vague and futile attempts to establish some guide in practice have been made at different periods, but in no academy of Europe has the science of colouring occupied that share of attention its importance demands.

The remark from Goethe, quoted at the head of this preface, penned half a century ago, has, until the present time, continued in the main to represent the feeling of artists on the subject of colour, and the state of our knowledge of its principles and their practical

application: nor did Goethe himself do much towards bringing about a better condition of things. This *Theory of Colours* has been much read, but the only practical suggestion in it had been made before, viz., the circular arrangement of the prismatic spectrum so as to exhibit contrasted colours, or *opposites*, the application of which by painters has been confined to the *juxtaposition* of colours in a picture.

In order to duly estimate the claims of the author of the following pages to the merits of the discovery of the method of painting with *opposite* colours, it will be necessary to recapitulate what had been done before he made known the results of his observations and experience.

The phenomena, variously described under the names of "accidental colours," "complementary colours," &c., were first examined by Buffon, who in 1743 published an account of his observations on the colour of the image perceived by the eye, after it has been directed for a time to an object of some particular colour,—its *accidental* or *opposite* colour. For instance, if the eye is fixed on a red wafer lying upon a sheet of white paper, it will appear fringed with a faint green: if, after observing this phenomena for a considerable time, the eye is turned to another part of the white paper, where the red wafer cannot be seen, a spot will be apparent of the same colour as that which appeared to fringe the red, viz., green: hence

green is considered as the complementary colour to red, being composed of two of the three primary colours, of which red is the third, the eye apparently supplying the deficiency necessary to complete the component parts of a ray of white light.

“ These phenomena are of the greatest importance, since they direct our attention to the laws of vision, and are a necessary preparation for future observations in colours. They show that the eye especially demands completeness, and seeks to eke out the colourific circle in itself. The Purple or Violet colour suggested by Yellow, contains Red and Blue ; Orange, which responds to Blue, is composed of Yellow and Red ; Green uniting Blue and Yellow demands Red ; and so on through all gradations of the most complicated combinations.”—*Goethe's Theory of Colours*.

The investigations of Buffon were taken up and pursued by Father Scherffer, a Jesuit, who published his researches in 1775. Æpinus and Dr. Darwin also examined the phenomena of the *successive contrast* of colours, and their observations were published in 1785.

Count Rumford investigated the phenomena of *simultaneous contrast*, and laid the foundation of many of the practical applications which have since been made by Chevreul and others. He thought that painters might derive many valuable suggestions from an acquaintance with the law of the harmony of colours he proposed ; but as this law was little more than the

play of his fancy, it is a matter of no surprise that painters have with instinctive sagacity avoided perplexing themselves with it.

Goethe directed his master-mind to the science of colours, but the painter may seek in vain for any practical suggestions in *The Theory of Colours*. He has, however, the same diagram of the circular arrangement of the prismatic colours that our author discovered for himself, and so ingeniously applied to the practice of his art.

But it was reserved for the eminent chemist Chevreul, to arrange and correct the observations of his predecessors, and basing his investigations upon them, to present to the world the most valuable series of results that probably the subject is capable of receiving.

In his contributions to the *Memoires de l'Academie*, continued during various years since 1828,—physical, physico-chemical, and chemical,—the whole subject has received that searching examination which is due to its interest and importance.

Although originally undertaken with the object of perfecting the art of dyeing, the results of his researches were naturally extended and applied to other arts in which the use of colours forms a feature; as in textile manufactures, interior decoration, costume, &c., in their application to painting, they were limited, as were the labours of his predecessors, to the harmony and contrast of colours by juxtaposition.

The circular arrangement of the colours of the prismatic spectrum has occurred independently to several investigators of the phenomena of light and colours. We find it first (according to Phillips, in his *Lectures on Painting*,) in a book entitled *The Natural System of Colours*,\* written in 1766, by Moses Harris, author of *The Aurelian*. It contains a diagram nearly similar to that given by Goethe in his *Theory of Colours*, by Merimée in his *Treatise on Oil Painting*, and by the author of the present work.

But the merit of applying this theoretical arrangement of the prismatic spectrum to a method of painting at once simple, intelligible, and effective, is justly the meed of our author, who, apparently in ignorance of all that had been accomplished by the philosophers named above, by reasoning and experiment pursued the same course of investigation which led to results they never anticipated. Nor does his claim to originality suffer diminution from the near approaches made by others, since in all that has been written on the

\* Harris's treatise is said to be exceedingly scarce, but copious extracts from it may readily be found in *Phillips's Lectures*, and in the translation of *Merimée on Oil Painting*, by W. S. Taylor, London, 1839, with a copy of the diagram referred to. In the King's Library in the British Museum, may be found *The System of Colours*, by Moses Harris, published by T. Martin, 1811. It is remarkable that his observations have excited so little interest, and that no practical use should, in the hands of his commentators, have been made of them.

subject, we do not find one word or hint of the method of under- and over-painting, with contrasted or *opposite* colours set forth in these pages. Nor is it likely that such practical application should occur to the mind of any one but a painter ; hence the only use made of the arrangement of the chromatic circle, has been to suggest a harmony of colours by their juxtaposition.

Had any such application been made of these philosophical researches, it would doubtless have found its way into the systems of instruction pursued in our academies of painting ; but in no course of lectures, either oral or written, has it to our knowledge found a place.

Contrasted with the modes at present generally taught and practised, his system of under- and over-painting possess the strongest claims upon our attention. In Bouvier's *Manual*, the palette is recommended to be laid with upwards of an hundred mixed tints ; in our author's some twenty simple pigments suffice, the tints being for the most part produced upon the canvas ; this, with the method of Prima-painting, appears to have been the practice of many of the old masters ; some references to the testimony that such is the fact, are inserted among the notes to this work ; they might have been extended almost indefinitely, but that is unnecessary ; our author's method is so simply and logically set forth, that it carries conviction to the mind at once.

Some objections may be taken to the use of certain

terms, in a sense different from that usually received in the vocabulary of art, but this has been done advisedly; the nomenclature of colours stand greatly in need of revision, and any attempt to secure precision should be encouraged.

I cannot but indulge the hope that this little book is destined to have a beneficial effect upon art; if it serves to render simple and sure what is vague and complex, artists cannot be too grateful to the author: that it will accomplish this and much more, is the conviction of

THE TRANSLATOR.



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THE  
ART OF PAINTING RESTORED.

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INTRODUCTION.

So many books have already been written on the Art of Painting, that it might readily be supposed the subject is entirely exhausted, and that it is only necessary to study those books in order to acquire the Art; but, that this neither is, nor can be the case, must, I think, be admitted by every one. Painting is not learned from books alone: they ought to be safe guides, but seldom are. Let us inquire what may be the reason of this? Perhaps it is because the writer has not sufficiently examined the subject, or possibly does not properly understand it. Partly both may be the cause. But the principal reason is this—they have not discovered the foundation stone upon

which alone a strong and secure superstructure can be raised.

I maintain they have not found it, or they would not have given such uncertain theories; for whoever had discovered the right foundation, could not go so entirely against the truth.

Certainly, they tell you very minutely how to blend such and such pigments, discriminating those which fade from others that are permanent, as well as those that have a bad influence upon others; they also tell you how different Tones ought to be mixed, in painting the head of a robust man, of a delicate woman, of children, and of old people. The more minutely, however, such things are discussed, and the more numerous the rules given, the more difficult painting becomes. The young student, instead of being enlightened, only becomes more fettered, without knowing it.

In order to afford real help, a law must be given, upon which all other laws should be grounded—a law drawn from the operations of Nature herself. Particularly, it must be shown not only what colour is, as colour, but also as

Tone; how many colours there actually are, and how they are to be considered.

We ought, further, to endeavour to lessen the number of pigments, so that it may be clearly and easily understood, that, in fact, we paint with three colours only. We must bring back the material colours to the ideal ones; and observe that in the Rainbow, the whole law of colours, the whole secret of Tones, the whole science of colouring—in short, the key to *Mixing*, is to be found.

But to explain the laws of the entire range of the prismatic to other colours will be very difficult, though clear to myself; and I must therefore crave the indulgence of the reader, if, in my endeavour to render myself intelligible, I become tedious on account of my repetitions.

It is my particular object to explain the life and effect of *Ideal Colours*,\* for this is the only means of learning how to employ the material colours (pigments) with understanding and cer-

\* I only allow myself to use the expression “Ideal Colours,” in order to distinguish the material colours (pigments,) from the prismatic colours of the same name.

tainty. I will treat of material colours only so far as it is most important to know which should be used in painting, in order to approach in their employment the nearest possible the effect of ideal ones ; also which should be employed on account of their durability and usefulness. I will mention every technical advantage gained in my experience ; and as I learned almost all I know through failures, I will confess my errors, because I think they will be as useful in instructing others as they have been to myself. As much as possible it is my object to smooth the way for young beginners, so that they may not remain long anxious and uncertain about their colours. I also desire to guard them from unconditionally believing every one who prates about *Colouring* ; finally, I attach little value to knack or technical advantages, but much more to the æsthetical life, and the æsthetical influences of colours.

## OF IDEAL COLOURS.

THE purest colours are to be found in the Rainbow; in my opinion the *Ideal* of Colour.

All Tones are found in it, let them meet as they may. They never can appear inharmonious; even their death is pure.

Light and Darkness, in our eyes, as colours, do not exist.

Light in its highest power is a colourless ether—a nullity.

Darkness in its utmost depth is a colourless obscurity—a nullity.

Yet colour is formed from the negative and positive operation of Light and Darkness upon each other.

There is a contracting and expanding power in Light and Darkness.

When Light gives way to Darkness, the Darkness draws the Light into itself, becomes

incorporated with, and softened by it; but the Light suffers in consequence of this incorporation. Upon its first entrance into Darkness, it is absorbed by it, and its splendour diminishes—it becomes Blue; and continuing to penetrate the Darkness, the more the latter imbibes it, the more this Blue becomes tinged with Red, until by force of its own splendour, it conquers the Darkness, and then stands forth as a perfect Red in the greatest brilliancy.

In this Red no more Blue is to be seen; it is a pure Red, and yet it is the same Light which on its first appearance showed itself blue to our sight.

When this Light has gradually subdued the Darkness to a mere point, it progresses on through Blue, and through Red, in order to produce a perfect Yellow, which unites with the Blue of the eternal heavens, and exhibits the six colours of the Rainbow.

Light is penetrated by Darkness, and absorbs it. And yet these appearances have Light and Darkness in themselves, because they are gene-

rated by both, therefore they can be both. When harmoniously combined, they are as Life and Light; but when opposed in equal strength, as Death and Darkness.\*

In order to produce some practical results, I will describe this Life and Death.

\* The expression, "Life and Death of Colours," will be explained hereafter.

PROPERTIES OF THE  
THREE IDEAL PRIMARY COLOURS,  
BLUE, RED, AND YELLOW.

BLUE is elevating (negative,) and cold.  
Red is the colour of the highest life.  
Yellow is determined (positive), joyful, and  
warm.

The expression warm and cold, appears to me  
the fittest for colours, as it is already adopted  
in the language of Art, and because warmth  
and cold proceed from Light and Darkness like  
their colours.

Blue, Red, and Yellow, are the generic colours,  
and therefore I call them the Primary Colours.

If these three Primary Colours are united to-  
gether in unequal strength, they produce an end-  
less variety of Tones: but if they are mixed in  
equal proportions, they kill each other.

Two such primary colours of equal strength  
combined, always produce a third (in which both

lie concealed), and which are generated colours, as Green, Violet, and Orange. Green consists of Yellow and Blue, Violet of Blue and Red, and Orange of Yellow and Red.

In this treatise, I do not call these generated colours as they are named in the Rainbow, but I call them Derivative or Secondary Colours.

Again, these three secondary colours have in themselves a life and a power to produce Whole Tones, when one of their generic colours is predominant. In proportion as they approach their generic colours, so do they receive their distinctive names: for instance, the primary Green consists of Blue and Yellow; if, therefore, Blue predominates, it is Blue-Green Tone; and if the Yellow predominates, Yellow-Green Tone; in the language of Art, *cold and warm green*.

So it is with all three. Yellow-Orange Tone, Red-Orange Tone, Blue-Violet Tone, Red-Violet Tone.

Blue-Violet Tone is a cold Violet, and Red-Violet Tone is neutral. Orange is the only secondary colour which cannot become cold, be-

cause it consists of the warm Yellow, and the neutral Red, primary colours.

These Tones always remain whole Tones, let them tend ever so much towards their primary colours; they are pure whole Tones; they are undiminished, light, prismatic Tones; although they may be lighter and darker, yet they are not half-tones, and still less are they shade-tones.

## LIFE AND DEATH OF IDEAL COLOURS.

ANY two of the three primary colours, therefore, when united in equal proportions, give *secondary colours*, and when in unequal proportions, *whole-tones*, which are both living, as two primary colours cannot kill each other. Only the three primary and the three secondary colours can kill each other, and then only when they are combined in equal strength.

A primary colour can only be killed by its opposite secondary colour, because the latter contains the two other primary colours in equal proportions. Thus, Red can be killed by Green.

A secondary colour, as it consists of two equally powerful primary colours, can only be killed by its opposite primary colour of equal power,—thus, Orange can be killed by Blue.

Two primary colours cannot kill each other—they can only form a secondary colour, either Green, Violet, or Orange, for no primary colour

can form a contrast to another primary colour. A third primary colour of equal power is requisite. This additional colour always kills the other two.

Two secondary colours cannot kill each other ; they only form half-tones, because they do not in themselves contain the three primary colours in an equal degree ; for they always possess one primary colour of double strength. For instance, the two secondary colours, Violet and Orange, may be mixed together. Violet consists of Blue and Red ; Orange of Yellow and Red ; therefore Red exists twice as strongly in them as the power of each of the other primary colours in itself alone ; so they cannot kill each other, but only form a half-tone.

Two whole-tones cannot kill each other, but form likewise a half-tone, because the three primary colours meet unequally therein. For instance, a Red-Violet and Yellow-Orange together form a half-tone ; for a Red-Violet whole-tone contains twice as much Red as Blue, and a Yellow-Orange whole-tone twice as much Yellow as Red,

therefore, in the two together, there are three parts of Red, two of Yellow, and only one of Blue.

Furthermore, a half-tone mixed with its opposite primary colour, produces a whole-tone. It is still *living*, because a whole-tone must always contain a predominance of one of the primary colours. This predominance preserves it alive, and therefore is properly called a half-tone ; *e. g.* the primary colour Red cannot kill a Yellow-green, because more Yellow than Blue exists in the Yellow-green whole-tone.

Every mixture, therefore, strictly speaking, remains a living Tone, so long as there is any inequality in the three primary colours.

Only the perfect equality and strength of the three primary colours causes their extinction—their death ; that is, a colourless obscurity, a total want of light, the deepest shades, a dead black. Such a shade, such colourless obscurity, ought never to appear in painting, because light is ever operating on the shades of the material world. As soon as a shade is either warm or cold, it can no longer be dead. It is still a living Tone

through the priority (that is, the predominance,) of the Yellow or Blue primary colour. If not strictly a half-tone, it is still a living shade-tone.

The death of the Tones is in fact the total annihilation of the three primary colours. It is a dark, toneless appearance, which in our material colours we call *black*, and in its lighter conditions, *grey*. Nothing living can be produced by such a black, or grey Tones, for the light which gives the black a grey Tone, does not animate it. Life does not consist in light and dark, but in the unequal composition of the primary colours. If this unequal composition were not also observed in shades, we should have clear equal dead shades; and it would then be what every shade should be to the colour—its entire extinction—its death. In every union, therefore, of these three primary colours, *one* must always predominate.

By these means an incredible number of Tones may be produced, which all incline to their death. They are a diminution of the life of the primary and secondary colours, and of the whole-

tones, and are in the language of art called grey, middle, half, and shade-tones.\*

In order to find the *opposites* of the three primary colours, let a circle be described, divide it into three equal parts, and draw lines from the centre to the circumference. (See Plate I.)

Mark one of the three points with Blue, another with Red, and the third with Yellow.

Now extend the semi-diameter (radius) from the Yellow to the whole diameter, and it will fall in the space midway between Blue and Red.

These two colours form Violet, and this is the *opposite* to Yellow, as the line shows.

Now extend the line from the Blue to the circumference of the circle, it falls in the middle of Yellow and Red, and marks Orange, the *opposite* to Blue. The line extended from Red necessarily intersects the space between Yellow and Blue, which is occupied by Green, the *opposite* to Red. By means of this diagram, therefore, it is as easy to find the *opposite* of

\* *Vide* the Analytical Table of the combinations of the three Primary Colours.

every Tone which presents itself in the circle, as to know which secondary colour is the *opposite* of each primary colour.

It is of great use to study this circle of colours and Tones, because it is thereby easy to find the *opposite* of every Tone without further assistance.

In conclusion, I must remind the reader, that only the primary and secondary colours, and whole-tones belong to the Rainbow, that is to say, appear in it. They are the basis from which all shades and middle-tones must be formed and derived.

OF THE THREE  
IDEAL PRIMITIVE COLOURS  
IN  
OPPOSITION TO THE MATERIAL PIGMENTS.

THE purest colours are in the Prism. The colour-makers should strive their utmost to obtain this purity. If they should ever be able to offer us a Blue, Red, and Yellow of the same purity and strength, together with the depth in which all these are found in Ultramarine, we shall require no other colour. The nearer in these three colours the colourman can approach the *ideal* in colour, the more we shall be able to accomplish therewith. Each of these pigments should have a depth in itself, and should also be mixed with white, and yet even with that white retain its purity; that is, not have a particle of the other primary colours about it. The deeper these pigments are, the greater their power. Genuine Ultramarine corresponds with this re-

quisite, it has depth, and also remains pure when mixed with white.

The deepest Red we have is Madder Lake. Carmine excels it in beauty, but not in depth, yet neither of these is a pure Red. Carmine contains some Yellow, therefore, in terms of art, we say it is a *warm Red*. Madder Lake is not quite free from Blue, therefore we call it a *cold Red*. If we mix these two colours together they will not produce such a Red as we require for a primary colour.

The purity of the prismatic colours cannot be found in the above-named Reds, because they are neither of them pure, as the one contains some Blue, the other some Yellow; *and when this Blue and Yellow meet together in the two Reds, they form a Green, and Green is the death of Red*; that is, when it is united in equal strength with Red. In this instance it may not quite kill the Red, on account of its inferiority, but it injures the purity of the Red, which consequently cannot be considered a perfect primary colour.

In respect to Yellow we are still badly pro-

vided; we have none possessing both purity and depth. Light Yellows are not wanting, but deep ones, such as possess the depth of Terra di Sienna, and yet remain pure when tempered with the strongest white, are deficient.

In order to make trial of these Tone-mixtures according to the rules given, we may take such material colours (pigments) as approach nearest to the ideal. Raw Terra di Sienna, Madder Lake, and Ultramarine (genuine or factitious).

The question here is not of the use of these colours, but merely a few words as to the trial essays to be made with them; they will pretty well suffice to show what can be done with three colours.

First, mix some of the three primary colours\* (see the Analytical Table); the three secondary colours; then whole-tones; then half-tones; and also Black, the complete extinction or death of colours; and this trial will afford a convincing proof that Blue, Red, and Yellow, would for

\* They must be considered as such in this place, although in fact they are not so.

every purpose of painting be colours enough, if we could procure them in their perfection as true primary colours. We must, however, take them as we find them.

If we could obtain them as real Primary Colours, we could then accomplish with them much more than we can now with all our variety.

Upon the whole palette, there is not one pigment of a pure, perfect primary colour, except Ultramarine. As to every other pigment, call them by what name you please, they are only secondary colours, or whole- and half-tones, varying in height and depth as in purity. If we mix our whole palette together, the result is only a dirty Grey, because our material colours (pigments) are so far behind the ideal ones in purity.

Some impurity, or extraneous matter, is more or less attached to every pigment, except the genuine Ultramarine; *therefore the less material colour we use in our mixtures, the less impurity we have*, which is of great importance: *and it is only by the greatest simplicity in the mixture of colours*

*that this evil can be obviated.* In order to render this intelligible, the material colours (pigments) must be named and described. Of what primary colours they consist, or rather their relation to them, shall be pointed out. Hence, we can easily perceive that, in fact, we only paint with three colours—viz., with Blue, Red, and Yellow. With this view, the mixing of colours can be reduced to the simplest principles.

It all depends upon a clear knowledge of the collected pigments which are at our command, one or another may be dispensed with, when it is known from which primary such a colour is derived. Even with our material colours (pigments) though they are far from perfect primary colours, much can be accomplished, if we know how to employ them rightly.

In order not to lose sight of the simple principles of tone—or colour-mixing, among our numerous material colours (or pigments) it is better to consider the *relative* Tones of the primary colour as one colour. For instance, in order to have an idea of primary Yellow colour, we must

regard our Yellow pigments as one, for one property of the primary colours they have in common, or nearly,—height and depth, and only the second property is wanting. They are not free from the admixture of other primary colours. A perfect primary Yellow should possess height, depth, and purity, without a tone of any other primary colour.

In the same manner we must consider all Red pigments as one.

We approach nearest to the ideal Red with the three pigments, Madder Lake, Vermillion, and Carmine, of which the first approaches nearest to the pure primary colour, on account of its depth and height; and although it originates from the negative side, it is preferable to the other two.

In case of need, Prussian Blue, Cobalt, or the factitious Ultramarine, might be used as substitutes for the primary Blue. Genuine Ultramarine alone is a real primary coloured pigment—it is neither Yellow nor Red; its lightest and its darkest shades are pure Blue.

If, in their application, we consider the remaining pigments as constituents of material primary

colours, which cannot be obtained on account of their defectiveness, these simple rules will not appear complicated, but self-evident, and the simplicity of the theory remain unaltered.

Whoever will make trial of Gold Ochre, Yellow Ochre, and Naples Yellow, for his Yellows ;—of Madder Lake, Vermillion and Carmine, for his Reds ;—and, for want of the genuine, of factitious Ultramarine, Cobalt and Prussian Blue, for his Blues, will be astonished how much he is able to accomplish.

It is not meant that we should paint with these pigments only ; this rule permits the use of all ; but the young beginner should make himself acquainted with his pigments, so that he may know of what primary colour their Tones consist ; for on the Tone of the colour depends particularly the manner of its employment, and that is the only subject treated of in this place.

Of the choice of pigments on account of their durability and other qualities, I do not, on this occasion, design to treat. I would advise the student not to encumber his mind with the colour-

box ; he will then paint with more freedom and simplicity.

I will now describe those pigments which are generally acknowledged to be primary colours ; and also show how a palette should be prepared, as it is not so unimportant as some might suppose.

Our material colours (pigments) exhibit themselves in two different kinds of Tones, as do the ideal ; they have a positive and a negative life. The life of the Blue is negative, that of the Yellow is positive. For this reason we consider Blue as a *cold*, and Yellow as a *warm* colour ; and between these stands Red, which is neither negative nor positive, neither warm nor cold. In preparing the palette, then, Red should stand between these two, and in the centre of all the other pigments ; on the right all the warm pigments ; on the left all the cold. By this means two different sorts of Tones will appear on the palette. (See Plate II.)

Since we have no good medium Red among our pigments, then Madder Lake must be used in its place. If any one prefers painting with

Carmine, let him use it, but the former is preferable on account of its depth and durability. Next, on the right, stands Vermillion; then well burnt light Terra di Sienna (whoever has not got this can use Light Red instead); then comes slightly burnt dark Terra di Sienna, then Roman Ochre, Gold and Yellow Ochres, then Naples Yellow, and lastly, Crems White.

To the left of the Madder Lake, the light Oxide of Iron (*Venetian Red*), then Violet Oxide of Iron (*Violet de Mars*), then Ultramarine, Cobalt, and Prussian Blue. Green Cinnabar (*Cobalt Green*, or *Rinmann's Green*), being the connecting colour between Blue and Yellow, forms the conclusion of the series, if we consider them as arranged in a circle. After these follow Veronese Green, Ultramarine Ashes, and burnt Tyrolese Earth;\* then Mummy and Asphaltum as half-tones: but as these are composed of all three primary colours, they do not belong to the

\* From the absurd names given by colour-makers to the same pigments, it is scarcely possible to recognize which is meant by burnt Tyrolese Earth; I conclude it is burnt Veronese Green or burnt Terre-Vert. [Tr.]

circle, which consists only of primary and secondary colours, and of whole-tones. These five pigments are only to be regarded as softening connecting Tones for the whole palette. Veronese Green and Ultramarine Ashes are negative, Mummy and burnt Tyrolese Earth, positive, and Asphaltum, neutral, softening Tones. Then follow Black, and even Graphite (Black Lead,) Blue Black, and Ivory Black.

White and Black have nothing in them of primary colour, and therefore do not belong to the Colours.

This arrangement of the palette is founded on the prismatic order.

## RELATION OF THE PIGMENTS TO THE PRIMARY COLOURS.

VENETIAN White contains some Yellow; and Crems White has some Blue.

Naples Yellow inclines somewhat to Blue.

Light Ochre (*Yellow Ochre*) is a Yellow which inclines sometimes to Blue, and sometimes to Red; it is generally impaired by a mixture of clay, as are all the Ochres.

Gold Ochre is a tolerably powerful Yellow, which contains some Red, but less grey clay than the Light Ochre. Roman Ochre has something of Blue, with its depth, which causes it to incline to Brown. It contains more Red than Gold Ochre.

Dark Terra di Sienna\* contains all three colours.

\* I cannot give any reason why this pigment is not used in its raw state in oil painting, other than it becomes darker by time. Among the Yellow pigments, not one has such strength and purity as this. Therefore it is advantageously employed in fresco. As it is used with equal effect in its burnt state, it is of double value, and at all times indispensable in fresco painting. However, I do not recommend it for oil painting, but must regret that we cannot

Red is predominant, then Yellow, and, in very inferior degree, Blue, whence it also inclines to Brown; when properly burnt it should be a deep Orange, and have a Tone, which is imitated by raw Terra di Sienna mixed with an equal quantity of Madder Lake.

employ a colour of such vast capability. I wish that chemists, for the sake of art, would take this colour in hand, and endeavour to free it from its reputed prejudicial effects, or from the ingredients that produce the subsequent darkening. I have used it in its burnt state, in oil continually, because it is used by all other painters, and considered good. In its raw state I have used it neither for light nor shade, in oil painting, because it grows darker. But for fresco of every kind I have used it for light and shade, burnt and unburnt, and found it efficient in every respect. I certainly found on my first trials that this pigment dries more strongly than any other, and therefore made use of it very cautiously, but I never thought of laying it aside on that account; for hitherto I have not found that on drying it underwent the least disadvantageous change. Hence with strict justice it cannot be said that it darkens; for by darkening we understand only when a pigment grows darker year after year. My trials have been made only during ten years, but I have seen this same pigment preserved for three hundred years, without darkening; but in fresco painting only, let me add.

I regret that I did not, twenty years ago, make trial of this pigment in oil painting, so that I might have got at the truth, for as I am no chemist, I cannot examine it scientifically. It is, therefore, a matter for a chemist to explain the reason of the darkening; whether it will not bear oil, or rather, whether the evil cannot be remedied.

Light Terra di Sienna becomes Red when burnt; this, when mixed with White, resembles Vermillion mixed with White, but it contains more Yellow than Vermillion.

Chinese Vermillion is the purest, and contains least Yellow.

Carmine inclines but little to Yellow.

Here a true Red adapted to oil painting is wanting. There are certainly some fine Red pigments, but they are not durable.

Madder Lake contains some Blue, and belongs to the negative side.

Venetian Red contains more Blue.

Violet Oxide of Iron (*Violet de Mars*, or, *Indian Red*,) contains so much Blue that it is a Violet, but not a pure one.

Genuine Ultramarine is a perfect primary colour, containing neither Red nor Yellow.

Cobalt inclines to Yellow.

Prussian Blue yet more so.

Green Cinnabar (*Cobalt Green*,) contains an equal proportion of Green and Yellow.

Ultramarine Ashes contain all three primary

colours, but though the Blue is weakened, it predominates.

Veronese Green contains all three colours; the Blue predominates over the Yellow, the Red being very subordinate.

In Mummy, Blue is subordinate, Orange-tone predominates. In Orange, Yellow prevails.

In Asphaltum, Blue is subordinate, and Orange predominant; here Red has the supremacy.

Graphite (Black Lead,) is a half Black, or rather, Grey, and contains all three primary colours in equal, but not in full strength.

Blue Black contains the three colours, but Blue predominates; and in

Ivory Black, Yellow predominates.

By means of this analysis every other pigment can take its proper place on the palette. Too many colours should be avoided, particularly such as are imperfectly understood.

With the exception of some few pigments in which the two kinds of Tone are visible, it is not necessary to rub up all those named above on the palette.

Only when large masses are to be painted is it necessary to lay Ivory Black and Blue Black on the palette ; for ordinary purposes it is better to mix the Black from the three primary-coloured pigments.

Mummy, Asphaltum, Ultramarine Ashes, burnt Tyrolese Earth, and also Veronese Green, *must not be treated as proper colours* for giving a local Tone to objects ; they are only *middle-tones*, used to *soften other Colours*, as will be shown hereafter, under the head of PRIMA-PAINTING.

## GENERAL OBSERVATIONS ON PAINTING.

THE idea of under-painting (dead-colouring) with opposite colours first occurred to me about twelve years ago, in the following manner:—

I was indebted to the good advice of a friend, that from the first I accustomed myself to Prima-painting; I was enabled to continue this so long as I did not require to get my bread by it, or depend on the approbation of others. Of course, I did not by this method bring any of my productions near perfection—not even inanimate objects.

My leisure for study soon ceased, as I was obliged to seek my own maintenance. I painted portraits—When I formed a right conception of a head, that is, seized the character of those whose portraits I was taking, and those persons were either indulgent, or understood nothing of composition, or did not pretend to understand it, so long I was able to accomplish Prima-painting.

On the contrary, when I was less fortunate in my conception, form and colour had to be altered again and again. I had to efface ; and the oftener I painted over, the worse was the picture. In this way I was quite thrown out of my fine study, and became often disheartened. Had I possessed the means of devoting myself for a longer time to Prima-painting I should have sooner reached the mark.

It frequently happened, that persons whom I had to paint, and to whom I could not deny a certain share of sense, would take their portraits, and stand with them before the looking-glass, and, placing themselves in the strongest light, there endeavour to convince me that their noses and cheeks had no such dingy shadows upon them as I painted.

By these means I came to the conclusion, that my painted shadows could not be quite natural ; for, I reasoned, had they been so, they would not have struck these worthy people so forcibly as faulty. Such was my firm conviction, but I did not know how to alter it ; until, at length, I

avoided shadows altogether, when and where I could.\*

I now placed every sitter in the strongest light, and hoped thereby to remedy the evil, for I did not then know the cause of my shadows appearing so dirty. But I should describe how I had previously placed my sitters. I closed up all the windows, except one pane of glass, which made

\* I must here observe, that at the academy some pigments had been strongly recommended to me as shadow-colours. Burnt Terra di Sienna had been particularly praised as an indispensable, universal shadow-colour, so that I thought no shadow could be painted without it, from which circumstance, I employed it very unskilfully, and in all shadows. With certain colours it answered my purpose very well; for instance, with all relative Blue-Tones, but not with others. I did not consider that it could not possibly give the right shadow to this or that colour; I only thought, *it must do*; and if I did not like the effect, I added another colour, according to my notion of colouring, without further considering the matter. If that likewise did not please me, because I had not *caught* the right one, I took another, and so on. This irregular mixture naturally assumed a Tone to which no name could be given (to be sure, we have in the language of art a name for it, and well know it is called a *dirty shade*). Had I obtained only a slight idea of colouring, or had I known that there are only three fundamental colours, and that there is no shadow-colour, I should have reflected as to what colours the tone of Terra di Sienna consisted of. I should never have fallen into such an error as to use it on all occasions, but have perceived its right place; the truth would have instructed me.

some of my sitters quite uncomfortable. In this way I certainly gained strong shadows, but nothing more; for there was no longer a *diffused light*, which also renders the shadows *clear and lucid*.

After this experience, I fell into the opposite extreme, and placed my sitters in the strongest light, and closed up no part of the window at all.

In comparison with my first arrangement, I had now scarcely any shadows at all; they were all Grey Tones. My portraits became clearer in the colouring, but also in every respect flatter. Life and roundness it was impossible for me to produce. But it better pleased those whom I then painted in this manner, and they absolutely would not permit me to paint their shadows.

Thus I continued some time longer, until an artist who had seen my earlier works, pointed out my error, and kindly set me to rights. Perceiving the truth of his representations, I now again painted in my earlier manner, only I threw a proper light on my objects, and sought to paint such persons only who wished to be represented

naturally, and applied myself to Prima-painting afresh ; but this was very difficult, as the right guidance was wanting.

I became extremely anxious to see the old master-pieces again. Rembrandt, Van Dyck, and Rubens, were my models ; I studied them in right earnest, looking at them often and long, but never copying them. I painted at home from nature. While studying these master-pieces, I was well pleased to be able to look at living bystanders also.

But great as was my admiration of these pictures, I still preferred copying from nature ; but when any thing puzzled me, I found it very useful to look at them, and consider minutely how others had overcome similar difficulties. For instance, I went to the picture gallery to see how the old masters had painted white drapery, and went home not without profit. In this manner I studied in picture galleries first one thing and then another, seeking that which was most answerable to my wants. It is of incalculable advantage to observe what others have done before us.

About this time I accidentally obtained a glass prism, which afforded me much inducement to think and investigate. It was very attractive to see how wonderfully out of three colours three others were produced. From that time the rainbow became more intelligible to me. I pictured [to myself these six colours arranged in a circle, in the order they stand in the prismatic spectrum, and so gradually arrived at their *opposite* colours, before I had scarcely an idea of them. Though I had occasionally, and almost unconsciously, succeeded in employing them, I had never perceived the reason of my success, yet I was induced to suppose that the combination of those very colours which I afterwards recognized as the *opposites*, must have caused the success of the shade-tones.

I found from experience that when I mixed burnt Terra di Sienna for Green, it produced a pretty shade; and I observed that landscape painters often glazed with that pigment: also, that it approached nearer to Red than to Brown, and soon saw from my colour-circle that Red was the *opposite* of Green.

When I first began painting, Veronese Green was one of my indispensable pigments. I used it for all strong flesh-tones, and perceived that it agreed with my rule. Delighted with this (to me) novel discovery, I dead-coloured a head with that pigment, entirely Green.

I must mention, that when I painted life-sized portraits, I was unable to paint them in Prima, and on that account took refuge in under-painting. Experience taught me that under-painting (dead-colouring) as usually done, was good for nothing, as unavoidable alterations in portraits which were failures, had taught me. Through these alterations I also perceived, *that when I had to paint twice with the same pigments, the purity and clearness of the colour was absent*, so I had to contrive another method of under-painting.

I had often heard artists say, that Grey was preferable for dead-colouring, and at that time I believed so. I therefore dead-coloured my pictures Grey. First I tried with single heads, and gave as much strength and roundness as I could ; when finished, it looked like a coloured engraving.

I then reduced the Grey under-painting so far, that I succeeded in laying it on so lightly that it appeared like a cloud; and on this under-painting could easily finish my Prima-painting.

Strictly speaking, it could no longer be called Prima-painting, but that I little cared for; I was satisfied with painting so much more easily. I treated all larger portraits so till I came to the aforesaid Green under-painting. My mixture of pigments had become simpler upon adopting the Grey dead-colouring, but still more so with the Green. I was thereby enabled to dispense with Green on my palette for actual painting.

I must add, that I never mixed Tones beforehand on the palette, but always mixed them together with the brush from the whole colours on the palette, and sometimes on the picture itself. As I was now accustomed to this latter practice, the Green Tone became very useful to me for powerful colours. I could only scumble\* lightly over this Green with whole flesh-tones, so that they showed at once what kind of middle-tone

\* By scumbling (*Anrippeln*) I mean the passing a very short

was formed on the Green ground. According to circumstances, I either glazed or scumbled my flesh-tones.

The same Tone looks very differently according as it is laid on lightly or heavily, so I threw away entirely all the Tone mixtures combined on the palette. Freedom is checked by them; we become the slave of these Tones.

Those painters who mix Tones beforehand know very well that they cannot make use of many among them. To what purpose is it, then, that we give ourselves profitless labour?

In this manner I continued painting during several years; sometimes a Prima, sometimes on Grey and Green under-painting, with this difference only, that the under-painting gradually became more indefinite in its form, so that occasionally I painted quite a different person from the one intended—a proof of what *freedom* this indefinite under-painting left me; whereas I had

brush so lightly over the canvas, that scarcely any colour remains on it. In this manner, also, we can glaze with opaque colours.

been often anxious about a definite one, particularly when I had hit the desired character of a form, which I did not wish to lose, though this form had yet to receive its proper colouring. Being thus fettered, I thought it better to paint the dead-colouring very indistinctly.

Full-length portraits I sketched before painting, but half-lengths I never drew except with the brush. Subsequently I varied greatly with this Green and Grey under-painting.

The *opposite* painting became daily easier to me. By this method I gradually attained purity with the three primary colours, and communicated the result to some newly acquired artist friends. Although laughed at, I was not to be diverted—I followed the thing up; and as I proceeded, saw that it was not so *very* bad.

Once, on being questioned by an amateur about my strange under-painting, I acquainted him with the principles upon which I worked, and he advised me to read Goethe's Theory of Colours. I was aware that Goethe had written upon colour, but I also knew that this said treatise was not

considered of much use by painters. Upon reading it, however, I rejoiced to find that the laws of nature, which he explains theoretically, harmonized completely with my principles. This greatly encouraged me to follow up my adopted method; and I venture to assert, that after reading this little book, many will judge differently of Goethe's Theory of Colours.

According to my principles, painting is a constant *drawing and modelling* with the brush, for in this way we are enabled to bring out the variety of Tones in the simplest manner with whole-colours, without mixing one Tone for the purpose. As a guide I will give a few examples with the three primary colours, as I hope with them to give the young student sufficient hints.

## OF UNDER- AND OVER-PAINTING.

### METHOD OF PAINTING WITH OPPOSITE COLOURS, WITHOUT MIXING MIDDLE-TONES.

IN order to solve the problem here given, I will suppose there is a Red, Yellow, and Blue drapery to be painted, and show how, according to the rules previously given, the desired end is to be attained simply and surely.

We know that each of the three primary colours is to be under-painted with its *opposite* secondary colour. This may be done in three ways. The *first and simplest method* of under-painting can scarcely, with propriety, be called such, as it is only a preparation of the ground, or priming, in order to paint *Prima* to the greatest advantage. As the consideration here is only of under-painting and over-painting, I will show how such under-painting, or ground, must be *over-painted*.

On a surface where a Red drapery is to come, lay a Green coloured pigment, only half-tinged

with White, and let it dry\* (as is shown in Plate III., where figs. *a* and *b* are *opposite* colours).

Such an under-painting is, properly speaking, only an advantageous priming, or ground, upon which Prima can be easily and expeditiously painted;† for here the over-painting is done like the Prima-painting, the employment of the ground does not quite bring out the expression of Prima-painting. Of course we can paint Prima on grounds of any colour, but only to advantage on such as the fundamental colour of each local-tone requires.

For a Red local colour we use a Green under-painting instead of a white canvas, whence arises the advantage that the half- or middle-tones form themselves; as may be seen in Plate IV., figs. *a* and *b*.

In order to effect this, it is also necessary to understand how to glaze with opaque pigments, because the *opposite* ground can only be used

\* If a warm Red is required, a warm Green Tone must be laid on; if a cold Red, lay on a cold Green.

† As will be shown hereafter.

by this means. This occurs when the middle-tones are used sparingly, so that only the shadows with a Red primary colour, and its *opposite* of an equally powerful Green secondary colour, are laid on the already existing middle-tones; hence the result, as shown in Plates V. and VI. Only the light- and mellow-shades are wanting to complete it. By this means a degree of finish will arise, of which Plates VII. and VIII. can only present a faint idea.

Why are not artists agreed about the Tone of their grounds? One likes to paint on a Grey ground, another on a flesh-toned and Orange coloured, a third on a White ground; and formerly for many years a Red ground was in vogue.\*

Experience has taught us that we bring out the desired Tones more easily by using certain colours

\* At the time I used Blue for all flesh-shadows, I always chose an Orange ground for portraits, for I had then directed my principal attention to the shadows; these I found it very difficult to paint. And as on this Orange ground I obtained a pleasing shadow-tone with my Blue, I imagined it must be the proper ground for portraits; not then knowing that Orange with Blue only forms a shadow-tone, which must injure the other flesh-tones, and the middle-tones.

on certain grounds, and my principles teach me to know the right ground for each colour and Tone; therefore, I say, whoever wishes to paint *Prima* successfully, must first prepare his canvas, so that each colour and Tone may have its proper underlaying. It stands to reason that the canvas must be light and colourless.

When the outline of the picture is drawn, lay on all the Tones and colours which the picture is to have, and the light opposite Tones,\* warm or cold, according as the disposition of the picture requires: this is the simplest under-painting, or rather the right grounding of the canvas.

\* The under-painting must be especially light, as well for whole Colours and Tones as for half-tones, that is for the so-called *false colours*, for which we have no name, for if the under-painting is laid on heavy, the picture will be dark in its keeping.

To render such a picture lighter, it must all be painted over again.

A dark under-painting should be carefully avoided, for when Tones and colours meet in equal strength and darkness, the shadow becomes dark and lifeless. On the contrary, when two equally powerful light *opposite* Colours or Tones meet, neither being warm nor cold, which, however, seldom happens, even if desired, a light pure Grey, yet dead Tone, is produced, which can be animated and strengthened in the finishing by azure colours, as the harmony and keeping of the picture may require.

The *second mode* of under-painting is as follows:—When the outline is on white canvas, in order to paint a Yellow drapery, lay on all the shadows and reflections with Violet of medium strength,\* as in Plates IX. and X., afterwards the whole remaining local-tone with the same colour, which, however, must be mixed with more White, and unite this local-tone with the shadow-tone in greater breadth, so that these two Tones may not be harshly broken off; then let it dry. (Plates XI. and XII. are the under-painting of this Yellow drapery.)

When this is quite dry, scumble the whole under-painted drapery with opaque Yellow. (Plates XIII. and XIV.)

An opaque pigment is requisite for this second method of under-painting, because the shadows are to be finished with Ultramarine. If this Yellow should not be opaque, it must previously be made so, by admixture with White. It must

\* By *medium strength*, I mean when the pure colour is mixed with about an equal quantity of White. But this cannot be so exactly fixed, as every colour is not equally yielding.

not, however, be laid on so as to entirely conceal the under Violet shadow-colour, but allow all shadow-tones to be seen through it, whence will arise a true, mild shadow-tone, which can hardly be called either Yellow or Violet.

When, as before said, these two colours meet in exactly equal strength, neither a Yellow nor a Violet colour will be distinguishable, but a lifeless Grey, which is never seen in the material world. Therefore it is not desirable to be particularly anxious about accomplishing such an equality of Tone. These principles have already been laid down in the discussion on half-tones, but for the sake of perspicuity, I bring them forward once more.

When the three primary colours meet in Yellow and Violet in *equal and greatest strength*, they extinguish each other, and produce the death of the colours, entire darkness—the deepest lifeless shades. But when only *one* of these colours is in its *fullest* power, and they meet in unequal strength, they form a strong but dark half-tone, or a still animated shade, because one of the

colours has the predominance. In the first instance, when both these colours (Yellow and Violet) meet in equal clearness, they form a *lifeless Grey*; and in the second case,—where these two unequally strong colours meet, a so-called *light middle or half-tone*.

When upon a secondary colour its *opposite* primary of equal strength, comes, as in this instance, where a Violet is followed by an equally strong Yellow, they cause the extinction of the three primary colours, and therewith the *death* of the colour. But if these three colours meet in *unequal* strength, they remain living, though weakened.

This under-painting of a Yellow drapery, shown by way of example, in which, with a secondary colour, the local and shadow-tone has dark and light colour, explains the case in which the opposite primary colour, in the same strength as the under-painted dark shade-tone, comes also upon the lighter local-tone; and the local-tone thereby acquires the predominance of the Yellow primary colour, through which the right middle- or half-tone shows itself.

As before stated, it is precisely the same, when the Yellow primary colour comes upon the under-painted shadow of equal strength, and the right disposition of the shadow is displayed.

In order to finish this specimen of drapery, lay on the same colour with which the whole was scumbled, in *equal-tone*, only somewhat *deeper*, where the entire colour is desired.

By laying it on deeper, this colour becomes visibly lighter, because by these means the underlying *opposite* colour being more and more covered, is obscured, and the upper colour tells more in its individuality.

We have now with the same colour, brought out another tone in this drapery, and that too without mixing.

Now lay on all the lights, except the highest;\*

\* For clear meridian light, the Yellow colour need only be heightened with material light, *i. e.*, with White. The shadows take no other Tone in this illumination, as in this light only the pure reflection of its inferior colour will be seen. But in coloured lights, both lights and shadows are coloured. Every colour of light possesses its *opposite* colour in shadow: for instance, if there be much Red in the evening light, the shadow of this light displays Green; that is to say, its *opposite* colour, and the same law holds with all coloured lights.

model the drapery in the light parts towards the finishing, and let them dry as over-painting, without having the highest lights and deepest shades. This can be partially seen in Plates XV. and XVI.

In order to finish this over-painted drapery entirely, first damp it with a mixture of oil and water, so that the colour yet to be laid on may blend more visibly and easily with the under-painting. Next deepen and warm the shadows with Ultramarine, lay on the highest lights, and blend in the reflected lights. This can be easily finished wet, if no opaque colour, but rather an azure, is taken as over-painting. Plates XV. and XVI. approach nearly to this result. Whoever understands Prima-painting will be able to finish it easily by means of this over-painting.

*Thus can under-painting be done with two Tones from one and the same colour, and over-painted with its two opposite colours, which, without mixing, produce four different tones.*

By means of the *third method* of painting, the

most brilliant colouring is attained. I will take a Blue drapery as an example.

The commencement of the under-painting is the same as in the second method. Lay on the whole with Orange for the darker and lighter Tones.

But in this the shadows and middle-tones must be already so carefully modelled and softly prepared, that besides the necessary reflected lights, the intended forms have only to be brought out from some depths for completion. Then let it dry. See plates XVII. and XVIII.

This under-painting, therefore, consists only of two Tones of the same colour; the dark Tone has the shadow together with the reflection, and the light one the local-tone, together with the light.

This under-painting being completely dried, in order to model and finish the light parts properly, scumble the whole with an equal Tone of the same colour, but not mixed with White; that is, take the Orange secondary colour, which has been already, for the under-painting of the shadows,

mixed with some White, quite *pure*, and lay it on very thin, but not thinned with oil, so that very little colour may remain on the under-painting; for two such opaque colours would injure each other.\*

In order to scumble very lightly, it must be done with a very short brush, so that scarcely any colour may come upon the under-painting. It is only to be moistened, so to speak, with this colour, so that the colour to be laid on afterwards may blend as *softly* with the under-lying colour, and appear through it, as if the whole had been painted at once.

The still remaining lights are to be painted with White alone, or rather to be drawn. (Plate XIX.) Draw and finish all the light forms as well as possible with this White, so that the

\* Like upon like must never follow, for where there is no re-action there is no life. Any one may be convinced of this by placing any colour in like manner and condition, twice in the same place; by this alliance it will acquire a different and quite lifeless Tone to its first appearance, which no varnish can re-animate or equalize with the other colour. Whoever thinks to give life to colours by varnish, has a wrong idea of the life of colours.

highest lights may stand out in pure White.\* The shadows may also be touched up with Orange where requisite. There is now a finished Orange drapery. (Plate XX.) This could be brought out all at once, but it would cost much more trouble to place the lights so purely as by this method.

Such is the third method of under-painting. If it is wished to prevent the after-darkening, this under-painting must be allowed to remain some time *until it is quite dry*. Then glaze the shade-tones and middle-tones with Asphaltum or Mummy† till they are lost in the local colour. Begin to glaze the highest lights into the deepest shades with Blue over the wet Asphaltum or Mummy, then with a short-haired brush, remove the Blue colour, together with the Asphaltum or Mummy, at the spots where the reflections are seen, or put in the reflections with opaque

\* The purer the white is laid on, the clearer and livelier the glazing appears over it.

† Asphaltum has its advantages in the extensibility of its colour, and Mummy in the softness of its Tones.

I will explain hereafter why I glaze with these two pigments.

colours, as the surrounding colours may require. Whoever makes trials in this manner will find that but little more is required for finishing; at most, he may yet draw in some more distinct forms in the deepest shades, because the most distinct and precise are never made until the last thing.

Just as I have shown the three methods of under-painting with primary and secondary colours, *so may all whole-tones be treated.* I will show how to proceed with the half-tones, when they are used as local-tones, after I have explained the purpose of half-tones.

In order to obtain clearness, brilliancy, and life, in our pictures, we use *half-tones* or *broken-tones.* These, in the language of Art, are called subordinate colours, false colours, which are as requisite to a picture as the Grey or medium-tones are to an object.\*

\* To produce a brilliant colour, it is not so necessary to possess and employ the finest pigments, as to know their right treatment and combination. It is the right combination which sensibly enhances the beauty of colours, for if it merely depended upon the colour itself, every painter who uses the same colours, would produce the same brilliant effect.

Every half-tone consists of an unequal combination of the three primary colours.

There is a *countless number* of such *half-tones* in the visible world for which *we have no name*, except *Brown* and *Grey*. These *half-tones* are all divided into two classes, the *Brown* and the *Grey*.

By means of the given principles we know that all half-tones consist of the three primary colours, in which one, or even two, predominate. Pure *Grey* forms the exception.

In a pure *Grey*, all three primary colours must be equally strong, but always light.

*Grey* is a light *Black*, which is neither warm nor cold. It is a lifeless Tone which, through the predominance of one of its generic colours, can be animated. Thus, for instance, *Blue* yields a cold *Grey*, *Yellow* a warm, and *Red* only enlivens it, by which means the basis of the *Grey* Tone always remains a different one from that of the *Brown*. *Grey* remains negative, but pure *Brown* always positive. Pure *Brown* Tone consists of all three primary colours, or more

precisely, of one primary and of one secondary colour, as Blue and Orange; in which, however, the Orange must be twice as strong as the Blue, and therefore, is the predominant colour.

In order to under-paint such a pure Brown, it is requisite to under-paint with just this primary colour, and this very secondary colour; and the Blue primary colour thus gets the predominance.

On that account, in treating all half-tones, the chief point is to know which colour has the predominance. The *opposite* of this colour then gets the predominance in the under-painting.

As Orange is always the predominant colour in pure Brown, this latter is always a warm Tone, even when it is a Blue-Brown. As long as a Tone can be called Brown, it belongs to the warm Tones.

There are as many Browns as there are primary and secondary colours—Blue-Brown, Red-Brown, Yellow and Violet-Browns, Green and Orange-Browns.\*

For every under-painting of these Brown Tones

\* See the Analytical Table.

it is necessary to use a different *opposite* colour, according to their diversity.

With the Blue-Grey under-painting Tone, which requires a pure Brown (Orange-Grey), there must be used either a primary or secondary colour.

In order to find what colour belongs to such a Blue-Grey *opposite*-tone, it is only necessary to see of what colours each of these Brown half-tones is composed; their *opposites*, mixed with Blue-Grey, is the proper Tone for under-painting. If, for instance, a *Red-Brown* is required, the under-painting must be Green-Blue-Grey; if a *Violet-Brown*, Yellow-Blue-Grey. Orange-Grey is the *opposite* of Blue-Brown. These opposite Tones must therefore serve each other for under-painting.

The *Opposite* of Yellow-Brown is Violet-Blue-Grey; of Green-Brown, Red-Blue-Grey.

It is only by the separation of the colours of the half-tones that the true under-painting Tone for all half-tones is to be found.

I will now show how White is to be under-

painted, according to the laws of the three primary colours.

The general law is, *that every Colour and every Tone must be under-painted with its opposite Colour and Tone.*

According to this law, White would have to be under-painted with Black, and Black with White. It is evident that this cannot be done; for the result would be only lifeless Tones, because neither White nor Black have any life in them. How then could life come from their mixture? We cannot produce living Tones from dead Colours,—yet White and Black must be under-painted with their opposites, like all other colours. What is to be done to animate them? First arises the question—What is the ideal of White and Black? In treating of ideal colours, we explained White and Black to be Light and Darkness. White as a colourless light ether—a nullity.—Black the entire deficiency of this light—the deepest darkness—a nullity. This deficiency of light shows itself in the material colours by the total extinction of the three pri-

mary colours. Material colours may be annihilated by Black, *but never brought back to White*; therefore, we must under-paint White with *such colours as generate Black by their extinction*; these are the three primary colours, or the three secondary colours, for they are each other's opposite and dissolution. Thus it is evident, that the material, inactive Black (the so-called Black pigment,) is not the opposite of White, but of **ALL THREE PRIMARY COLOURS**. They are also the *opposites* of Black, *but must not be employed together for under-painting*; for when together, they are dead, like every other pure Black colour. *Black can never have effect as a dead colour*, therefore, it must be left living, and only *divided* in a *primary* and in a *secondary colour, in their two opposites*.

When therefore a White drapery is to be under-painted, it may be done with any light primary or secondary colour we choose, which must then be over-painted with an equally light *opposite* colour, in the same manner as was shown with the three primary colours. To paint White, the colours for the under- and over-painting must be

kept *very light*, because dark shadows are produced sooner here than with other colours. If, for instance, a White drapery is under-painted with Orange, (Plate XXI. fig. *b.*) it must be over-painted with Blue (fig. *a.*); when under-painted with Red, it must be over-painted with Green, and so on. The rule is, when the under-painting is a primary colour, the over-painting must be a secondary colour, and *vice versa.* A pure shade or grey tone should always appear when these colours overlay each other, in nearly equal strength, according as they are more or less mixed with White. (Plate XXI. fig. *c.*)

Lay on the lights wet or dry, take out or put in the reflections, finish the shadows with single strokes, and warm them as the general lighting requires. The under-painting and over-painting of a black object is performed in the same manner.

As I have now shown, there are passive and active, negative and positive, cold and warm Colours and Tones, so an object to be painted

Black or White, may also take a passive or active disposition.

If the object is desired spirited or warm, it is under-painted with *negative* colours; if passive or cold, with *positive*. Because the colour for over-painting is always nearly as strong as the under-painted one, as it must be in shadow, and the same comes now in equal strength upon the under-painting, which is only half as strong; the upper one will be the stronger, and thus predominate.

If there be a *cold* under-painting, *inferior in strength* to the upper warm colour, it produces *warm* middle-tones; but if the *warm* colour is the *weakest*, it produces *cold* middle-tones. The same principles hold good with the Grey Tone. In this, all three primary colours are of equal strength, only they are lightened with White, and consequently, form a light lifeless Tone. There is even a complete extinction of colour in it, as in pure dark Black, on which account such a pure Grey can never animate a picture.

There are as many Grey Tones as there are

primary and secondary colours. In this respect, the Grey Tone resembles the Brown, only the effect of the disposition is quite the reverse. Grey is a cold combination—Brown, on the contrary, a warm one, as before stated.

Brown and Grey stand between the six colours,\* and their entire extinction.

Herein consists the whole principle of Tone-mixing.—Whoever has a perception of colour and feeling for it, can by these rules easily produce every Tone by under-painting and over-painting, without finding it necessary to mix a middle-tone. By these means it is easy to find every Tone for Prima-painting. *The principles remain the same, whether in Prima- under- or over-painting. Opposite Colours and Tones must always meet to produce shadows or half-tones.* Whether used wet upon dry, or wet upon wet, as in Prima- and in Fresco-painting, the principle remains the same.

Any one may convince himself of the truth

\* These six colours are the three primary colours, and the three secondary colours; and the entire extinction of colour is Black.

and accuracy of the method by trial, but should success not attend the first essays, still the possibility of success, and the truth of these remarks may be felt. This matter, like every other, must be practised.

What I have here laid down is nature's own law of colouring. All who look on nature will find it.

## ON PRIMA-PAINTING.

PAINTING is an imitation of nature by means of illusive forms; sculpture imitates it by actual forms. Sculpture is easier of attainment than painting, and therefore had a prior origin. In certain respects, it may be called the type of painting, if we take into consideration how the sculptor begins his work; from the nature of the thing, he is obliged to *begin rightly*. He cannot possibly fall into such error as we painters, for he is *compelled* to begin at the beginning.

He cannot, for instance, immediately begin with his file to shape a nose in the rough block; but he begins by cutting away large pieces from the block, to form the image he has conceived. By constant application, he approaches nearer and nearer his ideal, and thus gradually brings forth, by the finest touches, the minutest details. So should the painter imagine his subject on the bare canvas, and only sketch out the contour of

the *whole*, lay on the principal parts in light and shade, then carry through every *minutiæ*, so that he may not lose sight of his preconceived picture. Just as the sculptor completes his work, by first taking away largely, and then proceeding to small details, so must the painter attain his object by continual additions.

By this, the young artist may perceive that any one portion of a picture must not be singled out, but the whole progress in equal proportions to its final completion.

In the first sketch, every painting should, to a certain degree, already stand in harmony and keeping, as an under-painting ; and when opposite colours are laid on, or it is under-painted, nothing be painted out ; that is, individual things must not be anticipated, as it very frequently happens, that such parts as we like particularly, are more laboured than is good for the whole. This is always disadvantageous. I will suppose, for instance, that a head is to be painted ; that the forehead is first quite finished, then the left eye, afterwards the right, next the

nose, and so on. A head painted in this manner may suit the remaining White ground on which it is painted, but how would it look when all the White is covered, and such a head appeared on another ground? How could harmony possibly take place here!

Would it not be necessary to change both? If it happens that, on a head prepared in this way, dark and ill-prepared colours are laid, how flat and feeble will it afterwards appear! The whole work would be to no purpose; it would have to be painted over again, and once, without knowing it, even painted back.\* It is the same, if a picture already over-painted is treated piece-meal. To bring such patchwork into unison, is the work of much trouble and difficulty, which in the end still appears clogged.

As it is quite impossible for a beginner to finish a head at once, he frequently fancies that, by the partial finishing of individual parts, he

\* By *painting back*, I mean when an improperly-painted colour is to be made a light, but dead-grey Tone, in order to be able afterwards to animate it with the desired colour.

will by degrees attain to Prima-painting. I do not dispute the possibility of this; but he makes his task much more difficult, because he will always be obliged to over-paint this piecemeal Prima-painting, and only obtain an inferior degree of harmony and keeping.

In order to remedy the ill-effect of this, and contribute to the speedier attainment of the desired end, I will communicate my method of learning Prima-painting to such scholars as possess a persevering earnestness and desire to learn, and who are not in *too great haste to produce.*

Whoever wishes to learn Prima-painting, *must form a strong resolution never to try and finish his work by over-painting*, or he impedes his own improvement. He must strive to make all his studies approach perfection only by Prima-painting.

*The degree of perfection in Prima-painting depends solely on the commencement*, that is, on the manner and method; how, and with what colours a Prima-painted picture is begun. If such a

picture is commenced correctly, according to the laws of the three primary colours, the possibility of the right completion is at hand. Paint as long as possible while the colours are wet, but never paint on the dry, but begin perseveringly afresh.

In this way, and through untiring industry, *great facility of execution will be attained*, just as a juggler acquires such astonishing dexterity by constant repetition of the same action. He cannot *improve* his works; what is done is done; failure remains failure; but he perseveres until he succeeds. *Prima-painting must be learned in the same way*, and by perseverance the highest point in the art of painting may be reached. A knowledge of painting is never obtained by merely reading about it.

The chief consideration in facilitating Prima-painting is, to have the ground of the canvas so tempered, that the colour stays on. No other serves for this object so well as a thin ground. *Every thick ground is unfit, not only for Prima-painting, but for any painting.*

Whoever properly applies himself to painting will prepare the ground himself, at least for small pictures.

I will hereafter give a very simple method of priming the canvas, and also show how thickly-primed canvas can be rendered thin without detriment.

Whoever paints on fine smooth canvas, that is, on a thick ground, naturally uses fine soft brushes, with which he is able to lay on the colour so that the brush *never touches the canvas*, but that the colour shall, so to speak, only be cautiously applied from the brush. For this reason he is obliged to lay on *a great quantity of colour, which is a great hindrance in sketching*. In this way he keeps working about in *an oily pap*, and cannot possibly finish all at once.

To paint Prima to advantage, the appropriate brushes are also requisite.

When a young artist commences painting, he must use only such brushes as are made of bristles, *for they alone belong to the highest style of painting in oil and fresco*.

*The larger the object painted, the larger must be the brush,*

It is of the greatest use to a beginner to learn painting in this manner.

*Large brushes should be used for commencing; small ones only for finishing.*

Whoever begins with large brushes, will not easily acquire an insignificant style of painting.

The brushes used for the first stage of Prima-painting should be well prepared. New brushes, generally, are of little use.

The brush must first become good by use. Where such a prepared brush is not to be had, grind it with water on a sandstone, as if you were going to paint on it.

There are brushes of various sorts of bristles; bent and straight, hard and soft; some which wear away by use, others which split at the point. Those brushes, of which the bristles wear away to a stump, are fit for scumbling (Plate XXII. fig. 1.), and when they are so worn, that colour cannot any longer be laid on

with them, they are very suitable for removing colours from the picture. (Plate XXII. fig. 2.) Those of which the bristles split at the point by use, are the fittest for softening the colours, and also for laying them on lightly. (Plate XXII. figs. 3, 4, 5.)

If there is little colour in such a brush, it will not cover the whole breadth of its surface, in laying on the colour, like a close brush, but it will leave the colour only in small single strokes. Through this arises the blending of one colour into another, while wet, which is similar to glazing on dry colour. With such a brush as fig. 5 shows, we are also able to lay on the first colour.

Once practised in the management of the brush, very much can be accomplished with a single one. Practice, therefore, as much as possible, from the commencement, to paint with few and large brushes.

Let the beginner avoid the so-called *softening* brushes—they can only be prejudicial to him. They are the veritable *form-destroyers*.

Softening brushes are used for blending colours together. Our largest brushes are generally made of badger's hair. But any brush of soft bristles, which has not a close point, may serve as a softening brush. For a life-sized head, the softening brush should be a good quarter of an inch thick, and pointed, but not have close bristles like the proper laying-on brush.\* (Plate XXII. fig. 5.)

When it is intended to entirely sketch a form, the least possible colour must be used in beginning the picture. If the colour is once laid on too thick, there is no getting on with it; there is even some danger of displacing and spoiling the whole design with one stroke. No more colour must be laid on than a thin ground will hold.

The further management of Prima-painting is as follows:—

For instance, to paint a portrait Prima,—first, scumble the place where the head is to come,

\* It is only necessary to observe about a laying-on brush, that it should have short, close bristles.

when it has a powerful Red, with Veronese Green\* (Plate XXIII.), but the rest of the canvas with Mummy,† and blend it lightly with the Green Tone.

\* When a head has a very weak colour, take Ultramarine Ashes instead of Veronese Green, just as a different under-tone is required for a different local-tone. Whoever understands under-painting, will know what opposite Tone to take for each colour.

† Mummy is a brown softening Tone, and therefore is worth as much for underlay in Prima-painting, as the shadow azures in finishing over-painted pictures. This brown has one peculiarity, *it is softening for all Colours.* It is also a combination of the middle-tones in light and shade, yet it is not a shade-colour. *The old Flemings well knew* that it is softening and blending; therefore, when they wanted to paint Prima, before they painted, they scumbled their white chalk-ground, either with *Stil de Grano*, (Brown-Pink) Mummy or Asphaltum, and shaded the whole picture with one of these pigments. By these means they immediately gave the keeping of the picture, and afterwards all the local colours, glazed where possible, laid on the lights with opaque colours, and finished the shadows with blending in the colours. This is very important and highly advantageous to artists who are already skilful in the management of the brush; but this method is not to be recommended to beginners who are not yet sufficiently to be trusted.

About ten years ago, this method of treatment was apparent to me in some old Flemish pictures. Since that time, I have painted all my pictures in this way, only in a varied manner. Either I laid one of these Brown Tones at once on my canvas, or even first on my under-painting, and oftener on my over-painting. Then I went on with the wet azuring as I have shown in the Blue drapery. I perceived that this mode of treatment was good,

When it is wished the picture should be kept darker, lay the Mummy on thicker, in order to give the principal lighting of the picture, so that no more than these two colours in lighter and darker Tones may appear on the canvas. (Plate XXIII.)

Then with the same Tone of Green and Mummy mixed, draw upon this Green scumbling the contour of the head. At the same time, and with the same Tone, sketch all the shadows and half-tones; blend them a little with each other, and also draw the whole figure in light and shade Tones. (Plate XXIV.)

There are not yet any parts of the face to be seen; the proper light and shade of the whole is only sketched where they are to come, but at this time there must be visible some *resemblance* in the *position* and *relation*. In order to judge more easily, compare the sketch with the original, because I knew for a certainty that other artists managed their pictures in this manner; directly or indirectly, they partly learned it from me. From that time they painted their pictures with more harmony and keeping, and moreover, executed them more easily.

and if you perceive faults, go on altering until you are satisfied.\*

The intended picture must always remain near the model, because in this way original and copy can be viewed at an equal distance, and it is thereby easier to accomplish the first design.

During the painting of the picture, it is particularly necessary *to look often at it from a distance.*

*In beginning a portrait, nothing should be looked at but the attitude and expression of the model, the keeping of the picture, and a proper harmony between them.*

It is very important not to proceed farther in painting *till the whole stands in proper masses*, for if there be any failure at this stage, it is almost impossible to remedy it afterwards.

If you do not hit the resemblance in the first sketch do not paint any further.

\* The distance from the object to be copied, must be at least three times as great as the object to be painted, so that the eye may take in the whole at a glance. It is as necessary to observe the proper distance as the object in view. When a painter makes the throat of a sitter his point of sight, the rise and fall of the shoulders is prevented from appearing in the picture. Only a picture painted with this point of sight, can be hung higher or lower without appearing out of drawing.

When in this slight sketch you perceive the resemblance of the whole, then draw the features in a somewhat darker Tone. For this Tone take Madder Lake, Terra di Sienna, or Blue, as the local-colour requires (Plate XXIV.)

Before beginning to paint the head with local-colour, the background\* should have its proper colour. When this is done, first begin to lay on the local-colour of the head, and with the same local-colour go over all the underlaid Green-Brown- or Grey-Tones, and combine them; but not with an empty softening brush, as is generally done, but always with some colour on the point of the laying-on brush, and with the very same colour with which the local-tone and lights are laid on. But the nearer this local-tone approaches the shadow side, the stronger it must be; that is, it must always approach the pure colour of which the colour of the light consists. The deeper this colour enters the shadow the more sparingly it must be laid on, so that the deepest shadows may scarcely be more than sketches, just as the

\* Be careful to paint only such backgrounds as exist in Nature.

local-tone of the head requires shadows, and as they are exhibited in Nature.

The under shadows require of themselves, that this local-tone should be stronger ; for though it looks strong in the light side, yet it would be too *colourless* or *faint* if it came on the shaded side, and we should be obliged to strengthen it. The rule requires this, for the opposite Tones must here meet in equal strength, if they are to form a shadow, whilst if in unequal strength, only half-tones are exhibited. These meet wet in Prima-painting, while on the contrary, in under- and over-painting, the wet is placed on the dry.

In order to obtain shadows in Prima-painting, opposite colours must meet somewhat darker than in under- and over-painting, so that a beginner might suppose the whole was begun too strong and too dark. Of this, experience alone can teach him. It is requisite that the underlaid colour be strong, for when a strong local-tone comes over it, and they combine together, they ought to form the right middle-tone. If the underlaid colour is not kept strong, the middle-

tones cannot be brought out with whole-colour, that is, with the pure local-colour, without requiring Grey to be mixed with it.

It is highly necessary in Prima-painting to begin by laying on large broad forms with strong, suitable, underlaid colour, in order to give at once, the keeping of the picture with this underlay, which could not be easily effected if we did not *devote proper attention* to the underlay.\*

When a head or picture has been so thoroughly prepared with the proper-middle-tones, that

\* As the keeping of a picture is important, I will, in this place draw particular attention to two points which greatly contribute to bring out the appropriate keeping, viz.—the *linear* and the *aerial perspectives*.

The greater the distance of an object from our eyes, the smaller it appears, as our own perception and the laws of linear perspective show.

The same takes place with the aerial perspective, the greater the space between an object and our eye, the more indistinct does the relative colour appear, because more air intervenes, which renders colour and illumination more indistinct.

Pure air in large masses appears Blue, but impure—Grey. This Blue or Grey air renders all colours and forms behind it indistinct, so that the colours of the most distant objects are at length so lost, that they only appear to our eyes as Blue or Grey, just as bodies at such a distance, insensibly disappear together in a point.

When a landscape painter paints a distance, he must keep it

the underlay presents the proper middle-tones through the pure local-colour, it will never be necessary to mix Grey with a local-tone, or still less, when the local-colour is already laid on, to go over it with Grey-tones, in order to produce the desired middle-tone. If it has been brought out in the manner specified, according to the requisites of the objects to be represented, it must never again be removed entirely, nor even the greatest part, by the local-colour, or shade tones.

It is the same in drawing on tone-paper; by improper treatment here, as in painting, the same failure may occur, if we are obliged to make the middle-tones with White and Black. Such a drawing will look hard and heavy. A drawing looks light on tone-paper, only when the middle-tones are brought out by the tint of the paper.

very airy, that is, have indistinct weak lights and shades in it; but the nearer the objects approach, the more distinct must be colour, light, and shade. When an historical painter wishes to paint a figure in the distance, he must observe the same rules, but the closer the figure is to be brought out, the more distinct must he make colour, light, and shade. This proper advance and retreat of objects in a picture, their proximity and distance, when only half- or middle-tones are laid on, must be apparent.

As soon as White and Black meet in such a drawing, the object of the tone-paper is missed.

Whoever understands drawing properly on tone-paper, can very expeditiously and with little labour bring out finished roundness and keeping, while on the contrary, it is very troublesome to carry out a drawing in keeping and roundness, on white paper ; just as a good middle-tone of the paper is required to draw easily, so does painting demand a good preparation of half- or middle-tones.

Whoever wishes to become a painter must draw his studies on tone-paper ; and whoever practises to profit by this tone of the paper, will perceive that also in painting, a right layer of middle-tones is necessary, and will also see that they are not there to be superseded with local and shade-tones, but to let them be of effect in the *right place* ; it is only by these means that a light, simple, and noble management of the forms is obtained.

When the whole is now properly sketched, and combined in local, middle, and shade-tones,

place the picture again near the original, and compare it once more, this time more especially, to see whether the colour is *on the way* to resemble the original. As long as it does not appear probable that it will resemble the original, when the colouring, the lights and individual play of colours are placed on, it is useless painting further. If the whole is properly prepared, let it advance. Before it is thus advanced, it cannot be finished ; lights cannot be laid on, nor shadows drawn, nor other play of colours brought in.

When the lights are laid on too soon, they mingle too much with the under local-tone, and therefore do not stand out enough. You are then obliged to lay on more colour than is good.

A properly advanced underlay must hold the fresh colour which is to be laid on without mixing with the under one in the act of laying on, which would not be proper, as by that it would be weakened.

If, on the contrary, the lights are laid on at the proper time, *a little colour stands out very distinctly.*

The proper time of laying on the lights is important in other relations, and especially as regards the lighting.

The morning hours are the best, because the light is then purest and clearest. When the sky is changeable, care must be taken in laying on the lights that the sky is the same as it was when the entire colouring was given to the head, or else the harmony of the colour is easily disturbed; for if the lights are even faithfully copied, they will no longer harmonize with the earlier colouring.

This might mislead, and induce one to begin changing the local colour already painted, with the idea that it had failed; although it might probably have been the right one, only painted under a different influence of light.

Whoever mixes Tones beforehand, thinks in such case, that his tone-mixture is false, especially if he has an idea of colouring. But if he is a *mechanical mixer*, the sky cramps him but little, and he will always think himself right, *because he followed his copy.*

Lay on the lights with a brush that yields the colours readily. It must be rather longer than those used for sketching, but not too long.

For this purpose, the longest brushes made must not be selected. I choose for my longest, only the shortest of those made for sale. I have most of them made shorter than they usually are, and only look out for soft even bristles.

I again repeat, because I think it extremely important, *that short brushes are the best for painting with little colour, and whoever uses little colour, can go on painting wet a long time.* This is a great advantage in Prima, as well as in under- and over-painting. It is the quantity of colour, one layer over the other, that prevents the modelling and perfecting.

The complete finishing is done with small bristle brushes, as each form requires.

The highest lights and deepest shadows must be done together lastly, if all the other *play of colours* is already there.

All painting consists of constant drawing, first in large, and then in small forms. When the

forms stand properly, that is, when they are all so prepared for finishing that it is easy to imagine the preconceived character of these forms, we can proceed fearlessly in the execution till we seize the right moment to give the complete expression of the character by some touches; and it will appear surprising with what little pains the desired character may at last be touched in; for this must be given last, as in order to present our best ideas, they must only be expressed at the last. If the character is given decidedly at first, it greatly impedes the modelling, as there is always a fear of its being lost.

It is a pleasure to keep working at a preconceived character, and see it gradually grow visible, and then produce it completely when everything else is prepared, and to feel a continually increasing anxiety lest it should be lost.

It certainly makes a great difference whether hope or anxiety accompany our labours.

If I only succeed in teaching young artists how to obtain the right view of the actual nature and operations of colours, I think my

essay will not be useless, nor entirely without effect. But I am far from wishing to put a restraint upon any one by these general rules ; but hope that every one will of his own accord be convinced by continual practice, *that this method of painting offers the greatest freedom.*

## Appendix.

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ON THE PREPARATION OF OIL COLOURS.

ON THE WASHING OF PIGMENTS.

ON THE BURNING OF PIGMENTS.

ON THE GRINDING OF PIGMENTS.

ON OILS.

ON GROUNDS OR PRIMING.

ON VARNISH MAKING.



ON THE

## PREPARATION OF OIL COLOURS.

It is a sad truth that few artists of our time possess any knowledge of pigments. The reason may probably be because they can now be bought ready ground, which formerly was not the case, when the pigments were prepared by each master for his own use ; the first occupation of the pupil, ere he proceeded to painting, consisted in grinding colours. But as, since Caracci's time, instruction in painting has taken a higher direction, and such practical trifles are no more attended to, this knowledge was gradually lost, and the less this mechanical part of the Art was exercised, the more there was written about it, so that in latter times, it has been treated too much as a main point.

Although this knowledge is of very great importance in painting, the young student is sometimes made so solicitous about it, that he will not venture to make any experiments, but finds it more convenient to buy his pigments ready pre-

pared. It cannot, therefore, be denied, that such writings do the cause more harm than good. So many chemical expressions are often interspersed in these treatises, that a young artist thinks he must study chemistry only to be enabled to read such writings, which makes his upward path still steeper.

For instance, if instead of talking about “chemical purification” of colours, it was simply stated that the raw pigments, before being used, must be washed with rain-water—cleansed; or that some required warm water to be poured over them, the end would be answered just as well. In this manner, many things might be simplified. To put Yellow Ochre into the fire and calcine it more or less, is certainly not to be regarded as a chemical operation!

Rather than read such treatises, it would be better for a youth who wishes to devote himself to the Art, to place himself previously with a house-painter for a time, in order to practise painting, and become familiar with large brushes; he would also become familiar with the pigments in their

crude state, learn how to prepare them, acquire a knowledge of oils and varnishes, the preparation of grounds, and better than all, become familiar with *work*.\*

\* Perhaps some of my readers will feel offended at this advice, in their conceit deeming it beneath their dignity, as artists, to learn to paint a door; while they think a great deal of themselves, if for months together, they copy lithographed heads in the vilest manner.

Here arise two weighty questions—firstly, which school of instruction is the best? and, secondly, through which the high calling of an artist can be most certainly determined?

If the advantage of both kinds of instruction is not great, the preponderating evil of the method of drawing alluded to is evident. It is quite true that no one can manifest his talent for Art by house-painting, and such technical practice; nor is it less true, if asserted, that talent for Art cannot be displayed by such a soulless method of drawing; for whoever can be taught writing can also be taught to draw a head from a copy. Yet every calligrapher could no more become an artist than every sign-painter.

The pupil who is really born to be an artist will sigh under the yoke of this extinction of mind; while on the contrary, the *uncalled* learns to deceive himself, and because, through dint of industry and pains-taking he produces something specious, thinks he is called to be an artist.

I have lived to see melancholy instances where such uncalled artists, deceived by these specious performances, have plunged themselves into temporary misfortune.

Art lies hidden in the inner man. To become evident, it requires more or less technicality, according to the manner in which it is to be displayed; whether in tones or forms, it possesses more or less technical difficulties. Here it treats of the plastic art; and

It would, in my opinion, be very well if a beginner were acquainted with these simple details before he takes to painting, so that he might at least know what washing, burning, and grinding the pigments is ; for these three operations are the most necessary that a painter has to perform with his pigments.

The earthy pigments require this, and they are admitted to be the best for oil and fresco-painting. Artists have at all times been on their guard with chemical pigments, examining and testing before with regard to painting, it has many technical difficulties to conquer in order to show itself.

The most intellectual display of the plastic art is the power of sketching our ideas ; the development of the forms belongs to the technicalities. To see our ideas in form and colour is intellectual painting, but to display these colours in all the forms of light, shade, and perspective, is the technical part of drawing and painting.

Art is intellectual, and must be examined intellectually ; it also requires intellectual preparation. And as drawing is the most intellectual part of the plastic art, it must be pursued intellectually from the commencement. This can only be done in copying from nature. Here pure intellectuality is in question ; and it is here only that one can judge whether the gift of the plastic art exists. Whoever perceives in his mind's eye the colour of his intended picture, has an eye for colouring. This is requisite to become a painter. He need only practice the technicalities, and the first preliminary practice is painting a flat surface.

using them, and that without having studied chemistry. They would place a new pigment in the fire—if it stood, they let it pass ; if the Tone became different, still it was a colour ; and if it pleased, they used it without further consideration. The burning of a pigment is the best test of its durability and fitness for use.

*If a pigment sustains the fire, it is good.*

This was the practice of the old painters, and it is the shortest mode of examination.

A young artist should inquire what pigments are used in fresco-painting. These are also the best for use in oil-painting. Let every new pigment, of which the durability is not ascertained, be mixed with slaked lime, and placed on wet mortar, where it is exposed to the weather. It generally shows its unserviceableness while mixing with the lime ; it will soon be easy to convince one's-self whether or not the pigment is durable when laid on. *Such pigments as sustain the lime, may be depended on for oil-painting ;* with the exception of white.\*

\* All White pigments used in fresco have no body in oil.

Yet some pigments must be employed in oil-painting, which will not sustain lime, and others which will bear neither fire nor lime; white lead (or Crems White), for instance,—an unavoidable evil in oil-painting. We are indeed constrained to take this in all colours. Hence it would be very desirable to have a white earthy pigment, which, when mixed with oil, should yet retain body and light. Vermillion can only be used conditionally,\* as also Mummy and Asphaltum.

\* Vermillion ought never to be mixed with White, but used pure; Rubens knew how to use it. He never mixed it with White for his flesh-tones; but played it in pure in flesh-tones and reflections. This may be seen in his heads; for instance, on the cheeks, this colour is seen only in close strokes, as if laid on with a small brush.—Rubens, however, did not use such small brushes as are made in our days: he understood how to lay on lightly with large brushes, and to accomplish a great deal with little colour. On a mouth, for instance, he would only make use of some little touches of Vermillion, in such a manner that the whole mouth looked animated in his colouring. Artists who know how to use whole-colours sparingly, can accomplish much by such means. But a little colour can serve only when it is the proper one, and used in the right place. Rubens paid great attention to this paucity of colour. It is also observable in his eyes: on attentively examining them, it will be found they are but modelled out with half-tones, and only the eye-ball characterized with a little whole-colour.

Although these four pigments will sustain neither fire nor lime, yet they are suitable for oil-painting. Madder-Lake, Carmine, and Prussian Blue will not endure lime, yet in a gentle fire they yield a fine durable Brown colour. Prussian Blue, especially, gives a very extensible Brown colour, which can in some measure replace Asphaltum.

## ON THE WASHING OF PIGMENTS.

EARTHY and mineral pigments are to be washed as follows:—Before washing, select the finest pieces, which, as natural productions, vary in Tone—for they are never equally fine when broken; as, if the best are mixed with the inferior, both being equally heavy in washing, a pure Tone would not be obtained, but a mixture of sand with other impurities.

These selected pieces must be pounded or grated to a coarse powder, put in a large vessel, and a good quantity of pure rain (or distilled) water poured thereon while stirring it. For this purpose keep a large quantity of rain-water ready, which when the colour is to be sweetened,\*

\* Some of the mineral pigments are not sufficiently purified by the colour-makers, so they must be *sweetened* for use. In order to know what pigments require sweetening, it is only necessary to pour hot water on them, and taste it. If the water has a sour flavour, the pigment must be sweetened; this is effected by continuing to pour fresh hot rain-water on the pigment till it no longer tastes sour.

must be very warm. All the light impurity will then float on the surface of the water, and when the pigment has settled again, pour away the impurity, fill the vessel full of water again, so that it can be stirred without running over, and let it stand a few moments. As there must be some pigment in all the water, pour half of it into another vessel, and this is the purest colour. Repeat this treatment several times, without being too sparing of the colour, for otherwise the sandy impurity will mix with it again. Pour away the clear water entirely from this washed portion, and let it dry in the same vessel, covering it over with paper to protect it from dust. When dry enough to be taken out with a spatula, lay it in small portions on a glass plate,\* and let it dry thoroughly. When perfectly dry and hard, keep it in a covered vessel for use.

\* I do not approve of drying it on blotting paper, because it receives impurity from the blotting paper itself.

## ON THE BURNING OF PIGMENTS.

OPEN burning at a certain degree of heat, renders every earthy pigment Redder. Some even turn Blue by still greater heat.

Pigments become Black and Grey only when they are burnt free from contact of air,—hermetically.\*

As the Tone of the colour is influenced by the degree of heat applied, and as the same pigment is not always equally dry before burning, it is not easy, even with the greatest attention to the burning, to match the Tone of a previously burnt colour. It is better, therefore, to burn these pigments at once, in such quantities, that we may secure a lasting provision of fine colour, in case the burning turns out well.†

\* The pigment is hermetically burnt when the cover of the pot is luted with clay. N.B.—For burning pigments, the pots must be unglazed, whether open or closed.

† Of all the other colours sold which are so unequally prepared, I have always bought a large quantity of the finest, for which my chief motive was, that I learned to know my colour accurately, and become familiar with it. A painter should be as familiar with

Having advised the washing and burning of pigments by the artist himself, it will be understood, that I equally recommend him to grind them, or at least to have them ground under his own supervision.

his pigments as a workman with his tools. If I paint for many years with the same pigments, I must certainly learn to know what each individually and mixed will effect. By using various Tones of the same colour, and continually grasping at new ones, the difficulty of painting is much increased.

## ON THE GRINDING OF PIGMENTS.

IT is of the greatest advantage to grind the pigments ourselves. We can, in the first place, give each the right oil, for every pigment does not dry with equal facility.\* Secondly, as the same pigment may be required to dry quickly or slowly, we have the advantage of being able to employ the suitable oil for either purpose.†

This applies particularly to Mummy, Asphaltum, and Veronese Green: whereas any of these pigments can be made to dry quickly. Another advantage is, that we are secure from adulteration by admixture with any other colour by the colourman; for some colours of great beauty are sold ready prepared for oil-painting, which if de-

\* White and Blue dry the quickest, Black the slowest, that is, Bone Black, or as it is commonly called, Ivory Black. The following do not dry readily—Mummy, Asphaltum, Gold-Ochre, Veronese Green, Madder-Lake, Carmine, and generally all unburnt pigments.

† For instance, when I want a colour as underlay for Prima-painting, it must not dry quickly, that I may be able to go on painting for a long time, and finish wet on wet.

sired in their raw state, the colourman cannot produce.\*

Having shown the advantages, I will add a word or two about the manner, of grinding colours.

When the colour is well purified, it is more easily ground, and therefore not necessary to be first ground in water.

Grind the colour as thick as possible with the oil, and take very little colour on the slab,† *so that it may never leave a coarser colour on the muller.* The less colour you take, the sooner it gets fine. The colour mixed with much oil in the grinding soon appears fine enough. But with little, it soon *is* so.

After grinding the whole colour sufficiently fine to be fit for painting, put it into bladders.

\* With many young artists it is a kind of pride, or perhaps idleness, which prevents them from grinding their colours. They would find time if they took real pleasure in colouring. It would indeed serve them as an amusement, and their profit would be greater.

† Slabs and mullers should be of glass, as the colour is less injured on them. The muller should not have sharp edges, but be somewhat rounded, or else at the slightest blows splinters fly off.

Calves' bladders are the most suitable. Before the colour is put in, soak them in water,\* press them in the hand, so that some of the slimy substance may come away, and stretch them over a tumbler glass, but not to let the greasy side be inside, for the grease would spoil all the colour. After filling, tie them carefully into a little bag, and cut off all the superfluous bladder, except a little piece which must be placed over the slit, so as to form a little cap, and with the end left, twine it round the top. Its slimy substance will make it keep; as it dries it will remain hard and closed, so that no oil will exude.

\* The bladders must not remain in the water till they become soft. A bladder so softened could not be tied tight enough; but when quite dry would be continually opening.

## ON OILS.

LINSEED and poppy-oils are the *fixed* oils usually employed in painting. Cold-drawn linseed oil I consider the best, because when pure, it does not so soon become rancid or clammy as other fixed oils. The simplest and best method of purifying it, with which I am acquainted, is to let it boil slowly in a glazed pipkin with pounded charcoal. In this way the watery particles evaporate, and the fat ones remain in the charcoal, if not previously skimmed off. Then filter it through paper, and keep it in well closed vessels; if these are of lead, the oil becomes still purer, because the lead draws the fat from the oil.

In order to increase the drying quality of this oil, simmer it for about half an hour over a slow fire; the longer it simmers the drier it becomes, but at the same time darker and thicker. If it is wanted as positive dry varnish, simmer it half an hour longer, and add gradually a little white

magnesia, taking care it does not run over. By way of precaution, fill the pot only a third full of oil, so that on rising, it may not run into the fire. It is very advisable never to boil varnish in a dwelling, but in an outbuilding, or in the open air.

## ON GROUNDS, OR PRIMING.

Oil is the most pliant vehicle of our colours.

As there is a good and bad in everything in the world, so oil has its advantages and disadvantages.

In its proper and improper use lies the good and the evil.

Every picture painted with little oil, keeps clearer and smoother than when painted with too much oil.

We must therefore see in what manner oil-painting is to be done with little oil.

If it is laid down as a principle to use little oil in painting, the ground to be painted on must have little oil; for the ground also belongs to the picture. The old masters knew this well; they often made use of their grounds in such a way, that where the tone allowed it, they sometimes did not in certain parts even over-paint the ground at all.

A good ground for oil-painting should have the properties of paper soaked in glue. A good ground should hold the colour laid on, that is, it ought to imbibe the oil somewhat, and only a *thin* ground can do that. The colours ~~must~~ be able to evaporate from the back and the surface. This is impossible on a thick ground, as the after-darkening of the colour must follow upon the frequently quick over-painting.

The best method of preparing the ground is the following:—Over a well-stretched, bleached or unbleached, even-threaded canvas, spread a thin layer of boiled flour and pipeclay.

Let this dry perfectly, and repeat the operation till the canvas shows no more open pores. If this layer is about the consistence of liquid honey, the canvas will only require to be spread three or at most four times with it.

The best sign is when the canvas is no longer porous. For too much of the mixture spread over the canvas would cause it to crack on the slightest pressure. That the whole texture should show through this mode of prim-

ing, is very probable. Whosoever is frightened at this circumstance can buy very fine canvas.

After these three spreadings, prepare an oil-colour of white lead and oil of turpentine, of the same consistence as the house-painter uses for his first coat of paint; spread the whole canvas over with it quickly, as clean and smoothly as possible, and let it get *quite dry*, so that any roughness may afterwards be easily rubbed off with pumice-stone. The dust of the pumice must be washed off. This canvas must be spread once more with white oil-colour, very even, and directly touched with a badger hair pencil. This oil-colour, however, must not be mixed with any more turpentine, nor must it be so thin as on the first application, as its purpose now is to cover: when this coat has been touched, sift over it some fine flour, so that all glittering spots may be covered.

Let the flour remain on a few minutes, so that it may combine with the oil, then lift the canvas, shake off gently the superfluous flour, place the canvas on an easel, and with a squirrel's hair

brush dust off very lightly any remaining flour, not incorporated with the oil, and then let this canvas dry well in the sun before painting on it.

Such a preparation of the ground may be applied not only to canvas but to wood. There is no fear of its cracking or tearing. I promised to show how the above-mentioned paste is to be made:—take the requisite quantity of flour, and mix it intimately with a little cold water in a pot, adding gradually more cold water, and keep stirring until it appears like thick milk; let it boil very slowly and keep continually stirring: as it thickens, stir it quicker, till it is a thick smooth paste, which must look quite shining. Now stir in some warm water, and let it boil slowly for half an hour. By continual slow boiling, it becomes smoother and smoother, so that it may afterwards be thinned with water, according to liking. Now lay some crumbled pipeclay in water, till the clay is penetrated and dissolved by it, stir it afterwards with water to the same consistence as the flour paste, mix these two in equal quantities, and pass them through a fine hair sieve.

When this mass is as thin as is required for water-colour painting, after it has been warmed again, spread a canvas or board with it.

If this first priming is laid on warm, it penetrates better, and combines better, with the object primed. When the canvas has been spread three or four times with this compound, and all the pores are thus closed, then spread the canvas with oil in the manner already shown.

In order to convince myself of the durability of such a ground, I painted a picture on one of this description, some twenty years ago, which, though exposed to the action of the air ever since, is yet in complete preservation.

Painting on such a ground has this particular advantage, that the oil can entirely penetrate the under-painting, which becomes thereby a *thin* one, an essential for a good under-painting. A thick greasy colour can only take effect properly upon a thin ground.

If it is wished to paint a picture quickly without having any of the above primed canvas, we can immediately under-paint with oil upon a

ground consisting of three or four spreadings of this mixture. There will be a very thin ground, which can, without prejudice, be over-painted and finished in a few days. Such a picture will never darken, for the oil will evaporate on both sides. If on such ground this under-painting should happen to be too thin for some persons, the colours for the over-painting must be mixed with wax, or a mixture consisting of

Two parts of mastic varnish, and

One part of fixed oil,

in which the twentieth part of white wax is dissolved.

Wax gives every oil-colour a peculiar mellow-ness and gloss ; but as the oil-colour dries less quickly by the admixture of the wax, the mastic varnish is added to promote the drying. The speedy or slow drying and imbibing of the colours can be effected by means of the wax or varnish, as may be desired.

## ON VARNISH MAKING.

MASTIC or Dammar varnish are the only harmless varnishes which we should use in our pictures ; they can only do harm when applied too soon. Varnishing too quickly is especially to be avoided. A picture should never be varnished in less than a year after its completion. But avoid still more carefully the temporary varnish of pure white of egg, for it becomes so hard, that it breaks the colour, as well as the ground, and can never be removed.

If it is absolutely necessary to varnish a picture immediately after its completion, in order to bring it out, take half the white of an egg, pour an equal quantity of water upon it, and beat it to a froth ; let it stand some time, take off the scum, and add a teaspoonful of honey. In case of need, this varnish may be spread over a picture without injuring it. The honey prevents the white of egg from drying, and therefore this varnish can

be easily removed from a picture, and mastic or dammar varnish applied subsequently.

These two varnishes are thus made:—Pick out the cleanest pieces of the resin and put them unbroken into a glazed vessel, pour upon them twice or thrice the quantity of oil of turpentine, and warm the vessel over a gentle charcoal fire until dissolved: then remove it from the fire, and let the impurities settle to the bottom; pour off the clear varnish, and thin with oil of turpentine. The older this varnish gets the clearer and better it becomes.

Enough has already been written upon these matters, so I consider it superfluous to add anything further on the subject.

## NOTES.

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[PAGE 6.]

This passage is thus further illustrated by a correspondent in the *Athenaeum*, No. 1084.

“We know but little about light, the nature of which, like that of many other things, has as yet been more the subject of conjecture than of demonstration. M. Hundertpfund’s ideas must stand or fall according to their intrinsic justice; but there are many things which seem to confirm them. For instance, let any one light a candle in a dark room, and watch the progress of its ignition. He will observe (particularly if the candle lights slowly,) that its first flame is Blue, that it then becomes Red, and at length blazes up from an Orange into a bright Yellow. This course of transition is in harmony with M. Hundertpfund’s hypothesis, for it will be the natural result of the following causes: —light is produced, and as it enters into the darkness (which is at first stronger than the light,) it becomes Blue; then, as it is further affected, Violet and Red; and when at last it frees itself from the darkness, and triumphs over it, Orange and Yellow. It may be remarked, also, that in daylight, in the open air, or in a room lighted up strongly by sunshine, this transition of

colour is not perceived ; and that in proportion as the room is in shade, will the transition be more and more strongly visible.

## [PAGE 8.]

There are several passages in the original which consist of allusions to the symbolism of colours : these are mostly omitted in the translation, because they would not only be unintelligible to any one who had not studied that interesting portion of the science of colours, but would have materially injured the general usefulness of the book by shocking the prejudices of the reader.

For instance, he says—"Red is the colour of the highest life—the nearest approach to the Trinity." In Portal's *Essay on Symbolic Colours*, we find, that "the third divine attribute, or the Holy Ghost, the love of God, and worship, have the same symbol, fire, which is translated in the language of colours by Red." "White is the symbol of God ; gold and yellow indicate the Word, or Revelation, and red and blue the Holy Ghost, or sanctification." In China, red colour is consecrated to religion, and the mourning worn by children is hempen sackcloth of a bright red. "The artists of the middle ages gave to Jesus Christ, after the resurrection, white or red costume." "Red colour being established as a symbol of the Divinity, and consecrated to his worship, it was applied to the costume of pontiffs and kings. Cardinals now inherit this symbol of sovereignty." For the symbolism of other

colours the reader is referred to the work of M. Portal, translated by Inman: London, 1845. It must be remembered that the greater portion of the continental artists are of the Catholic faith, to whom symbolism is made familiar from infancy.

“In very early art, we find colours used in a symbolical or mystic sense, and, until the ancient principles and traditions were wholly worn out of memory, and set aside by the later painters, certain colours were appropriate to certain subjects and personages, and could not arbitrarily be applied or mis-applied. In the old specimens of stained-glass we find these significations scrupulously attended to. Thus:—red, the ruby, signified fire, divine love, the Holy Spirit, heat of the creative power, and royalty. White and red roses express love and innocence, or love and wisdom, as in the garland with which the angel crowns St. Cecilia. In a bad sense, red signified blood, war, hatred, and punishment. Red and black combined, were the colours of purgatory and the devil.”—*Mrs. Jameson’s Sacred and Legendary Art.* Vol. I. p. xlv.

Oken, in his *System of Nature*, gives a philosophical justification of the symbolism of colours. He says—“Red is fire—love; Blue is air—faith; Green is water—hope; Yellow is the earth—the rigid, implacable, false—the only vice in opposition to the preceding virtues.” The poet Tieck (in his *Phantasus*) observes—“How marvellous to be absorbed only in a colour as mere colour! How is it that the far bright Blue of heaven awakens our longing, that we are moved by the

Purple lines of evening, calmed and consoled by a golden Yellow? Whence the indefinable rapture at the fresh Green, of which the eye can never imbibe enough to quench its thirst."—Quoted by Stallo in his *Philosophy of Nature*.

[PAGE 9.]

A ray of solar light is composed of an indeterminate number of differently coloured rays; in fact the number is entirely arbitrary, but was fixed by Newton at seven, viz:—Red, Orange, Yellow, Green, Blue, Indigo, and Violet. For the purposes of the painter, it is more convenient to regard them as six:—three primary and three secondary: the latter resulting from the mixture of any two of the former. The Indigo is thus discarded, as it only differs from Violet in containing a larger proportion of Blue in comparision with the Red. It is the Blue-Violet-Tone of our author.

Each of these groups of rays are not identical in colour throughout, but melt imperceptibly into, and blend with the adjacent group: thus, the Red group unites with the Yellow rays on the one side to form various shades of Orange, and on the other with the Blue rays to form various shades of Purple and Violet. This matter can be made intelligible and instructive to the artist who obtains a glass prism, and with it examines the solar spectrum.

[PAGE 16.]

Every artist will find it a very profitable study to construct this circular arrangement of colours for his

own use ; by it he will acquire a more definite conception of a true scientific nomenclature of colours than by any other means he can adopt. Chevreul's colour-table is arranged similarly to that of our author. The rays between each primary and secondary colour are twelve in number, producing seventy-two colours or tones. This circle is again divided by a series of twenty-one concentric circles (the last of which, the innermost or smallest, may be about one inch in diameter, and left White), in which the colours diminish in intensity or depth from the centre to the circumference of the outer circle. By this arrangement are produced one thousand four hundred and forty shades of the six prismatic tones. Each ray consisting of twenty shades or tints of one of the seventy-two different tones of the primary and secondary colours and their combinations.

The types of the three primary colours adopted by Chevreul, are for the Red—Crimson Madder-Lake ; for the Yellow—Gamboge ; for the Blue—Ultramarine or Prussian Blue.

Chevreul's colour-table appears, however, to be but a reproduction of a diagram in a Treatise on *The Natural System of Colours*, by Moses Harris, published in 1766, (?) and quoted in Phillips's *Lectures on Painting*. This diagram is copied in Taylor's translation of M. Merimee's *Treatise on Oil-Painting*, but by an oversight in the colouring of it, the gradation of the tones from their utmost intensity at the centre, to the faintest tint at the outward extremity of the circle, is omitted,

the intensity of the colour remaining equal throughout the whole length of the rays, whereby a portion of the explanation on p. 357 is rendered meaningless.

It will be observed that the only use made of this chromatic scale, either by Harris or Phillips, is the suggestion of a harmony of colours by *juxtaposition*, but not a word to induce us to suppose they ever thought of under- or over-painting shadows with their *opposites*.

[PAGE 23.]

The permanence of the colours in the pictures of most of the old masters, is mainly attributable to the comparatively small number of well-tried pigments employed,—to the perfect grinding to which they were subjected,—to the purity of the vehicle or medium with which they were mixed,—and to the practice of laying them on at once in their proper places, without teasing or torturing them in the attempt to effect impossibilities so often aimed at by inferior artists. Fortunately for their fame, and for our advantage, they were ignorant of the existence of those nostrums *megilp* or *gumption*, which the *mechanical mixers* of the present day resort to in order to effect what genius denies them.

“The fewer colours a painter makes use of, the greater command he will have over them, as the eye gets a more intimate knowledge of their properties and capabilities; and though like the changes of bells, their combination will produce an endless variety of tone, their chemical effects are less liable to destroy the durability of each other.”—*Burnet’s Practical Essays on Art*, (p. 94.)

## [PAGE 40.]

“The practice of using compound tints has not been approved by colourists ; the method, as introduced by the early masters, was adapted to certain conditions, but, like many of their processes, was afterwards misapplied.”—*Eastlake's Materials for a History of Oil-Painting*, (p. 399.)

## [PAGE 43.]

Abundance of testimony might be adduced showing the author's conviction to be sound. The following is in *Eastlake's Materials for a History of Oil-Painting*, London, 1847, p. 353 :—“Another peculiarity in the works of the time referred to, particularly those of the Florentine and Sienese schools, is the greenish tone of their colouring in the flesh, produced by the mode in which they often prepared their works, viz., by a green under-painting.”

The celebrated Chandos portrait of Shakspeare, in the possession of the Earl of Ellesmere, exhibits a green under-painting.

## [PAGE 74.]

That such was the process of the early Flemish oil-painters, see *Eastlake's Op. cit.* (p. 392.)

## [PAGE 90.]

Our author's antipathy to chemistry, arises probably from his perusal of some of those numerous treatises on colours, compiled by persons equally ignorant of chemistry and of painting. That a knowledge of the

chemistry of inorganic bodies at least, is useful, if not indispensable to a successful practice of the art of painting, cannot, I think, be disputed. We see daily the lamentable consequences of the want of such knowledge, in the injudiciously compounded pigments of Sir Joshua Reynolds and others. A knowledge of the chemistry of colours should form part of the education of every artist, as it doubtless will, when its importance is fully recognized. Besides, the manipulation acquired in the prosecution of chemical studies would be of infinite value in suggesting habits of thoughtful care and neatness in the mechanical appliances of the painting-room.

[PAGE 92.]

“ When we consider art in its higher character, we might wish that masters only had to do with it, that scholars should be trained by the severest study, that amateurs might feel themselves happy in reverentially approaching its precincts. For a work of art should be the effusion of genius, the artist should evoke its substance and form from his inmost being, treat his materials with sovereign command, and make use of external influences only to accomplish his powers.”

—*Goethe's Theory of Colours, by Eastlake.*

[PAGE 94.]

“ Rubens, the greatest master of his pencils that ever existed, may be considered the founder of the Dutch and Flemish schools; for though both in Germany and in Holland, many artists had arrived at a purity of tint

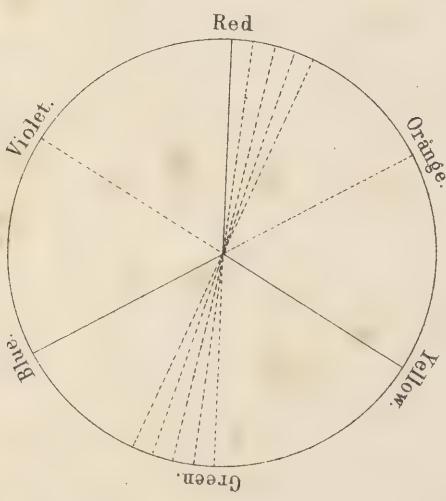
and transparency of colour, yet 'the facile charm that seems to mock at toil,' and liquid touch, which characterize these schools, emanated from his studio. This fascinating charm is to be seen in perfection in the works of Brower, Teniers, the Ostades, and indeed in all the contemporaries of the great original, whose example sheds its influence over all, for we find it also in the luminous landscapes of Cuyp, and in the dark recesses of Rembrandt; but as the Dutch school declined, this brilliancy faded to a leaden and heavy mode of colour. Yet even in the works of Rubens, this attractive quality is not always to be perceived. In his earlier pictures he still retains the dryness of Otho Verrius, and the harshness of the earlier German masters; as in the earlier works of Raffaelle, we see the influence of Perugino. It was only when these great artists acquired a facility of execution, and a confidence in their own powers, that their genius developed itself. This luminous transparency Rubens seems to have imbibed in the study of the Venetian pictures, evidently painted over water-colour preparations, the most lucid and brilliant style of painting; and though his works are commenced from the beginning in oil-colour, yet most of them, both of large and small dimensions, are upon panels, prepared with whiting and size, sufficient to resist the oil. This imparts to his pictures great brilliancy, as water-colour reflects and refracts light, while oil absorbs and retains it; independent of which, chalk is indestructible, while flake-white and other oxides return partially to their metallic bases. By ex-

amining his sketches and unfinished studies, he appears to have gone over this ground with a vehicle, such as oil and varnish ; and while wet, drawn in his subjects with dark-brown, heightening the lights with white ; this not only enables the brush to flow with ease, but gives a liquid softness to the touch. In many of the Dutch school we perceive this ground tinted ; in Potter and Wouvermans, often of a buff colour ; Ostade and Cuyp, of a yellow or cane colour ; and in De Hoage and Peter de Laer, dull-brown. We have been thus particular in the commencement of the work, as the ground influences, in a great degree, its future appearance, as any one may perceive by painting over a chess-board, which in time will re-appear, though covered with several coatings. In sketching-in the subjects, the depth or tone of the colour which is to form the shadows must depend on the lightness or darkness of the picture. In the works of Brower and the two Ostades, we find it approaching to burnt sienna, or bone-brown ; in Potter and Wouvermans, burnt sienna and black ; while in Teniers it is often little warmer than burnt-umber ; their shadows gradually getting richer and warmer, according to the general depth of their pictures. They seem, however, all to agree in keeping their darks transparent and thin, while the light portion are opaque and solid ; and as the tone of their several works vary, so does the vehicle with which they paint."—*Burnet's Practical Essays on the Fine Arts.*





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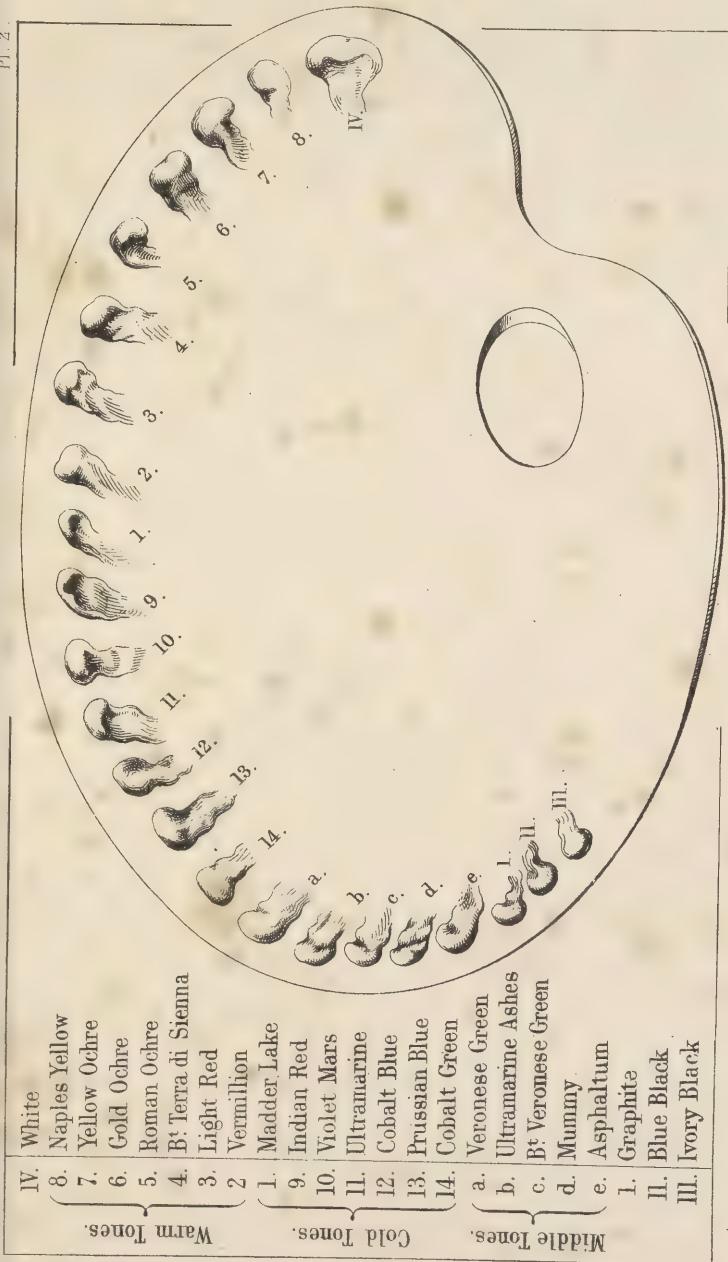


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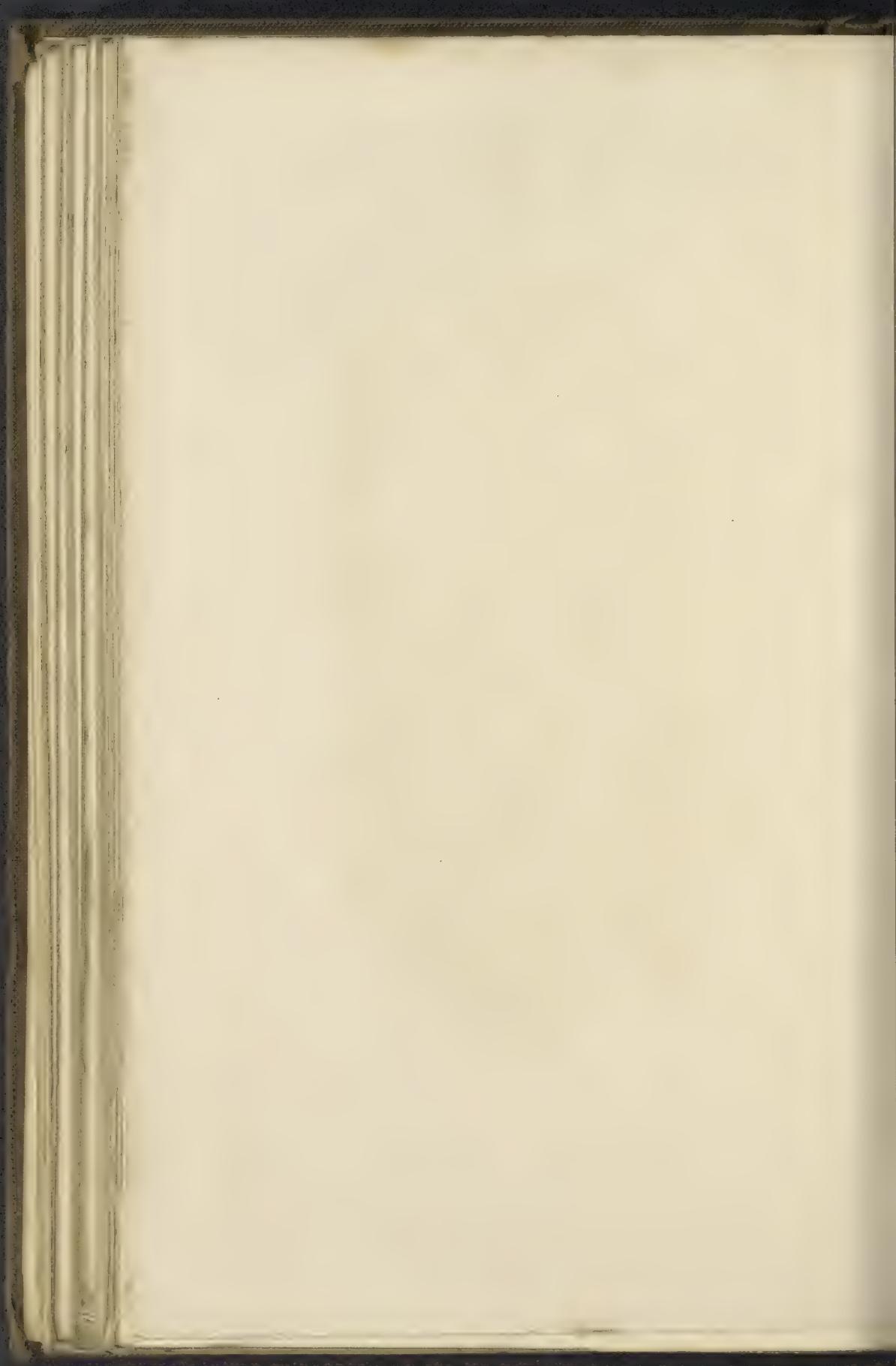
























































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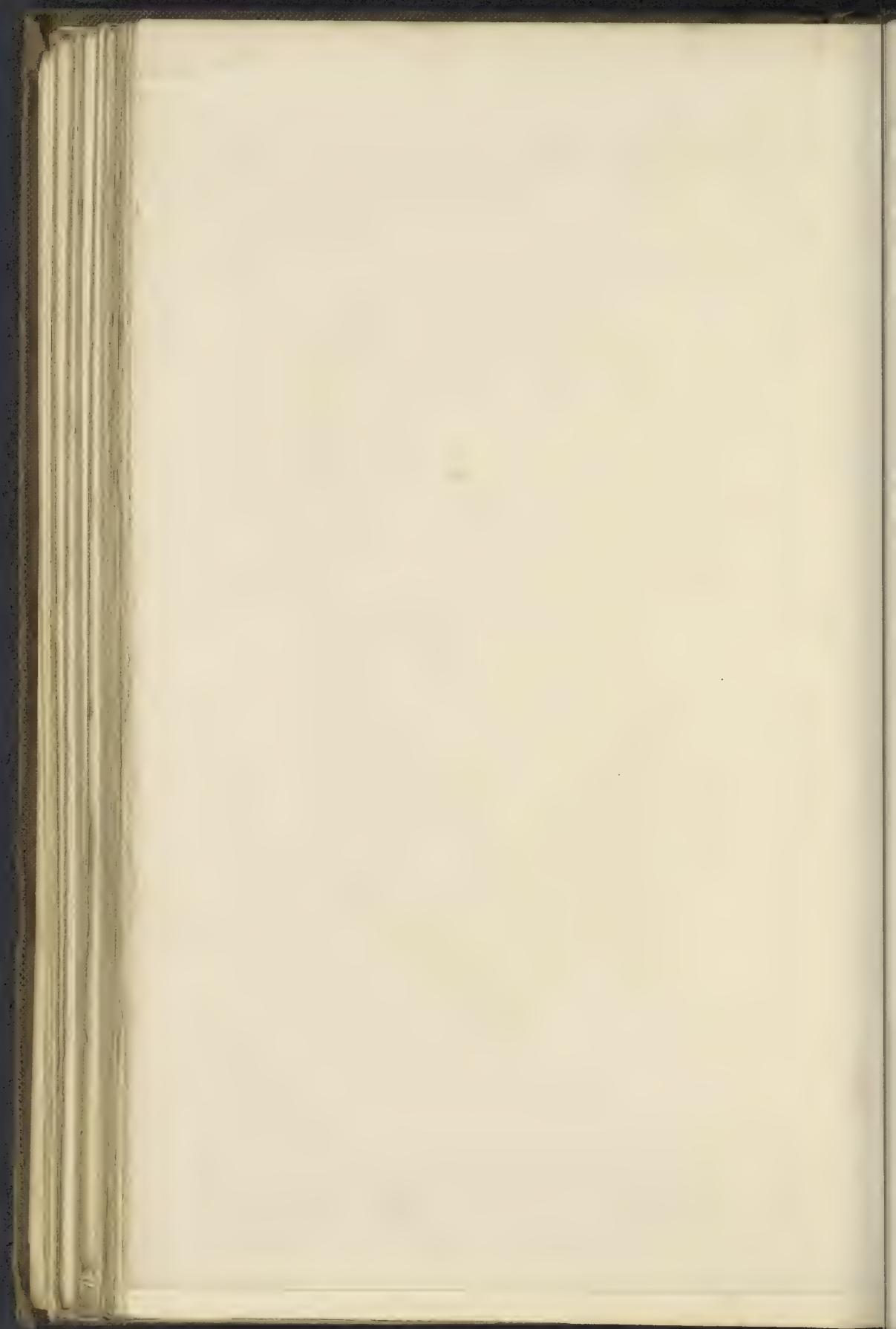










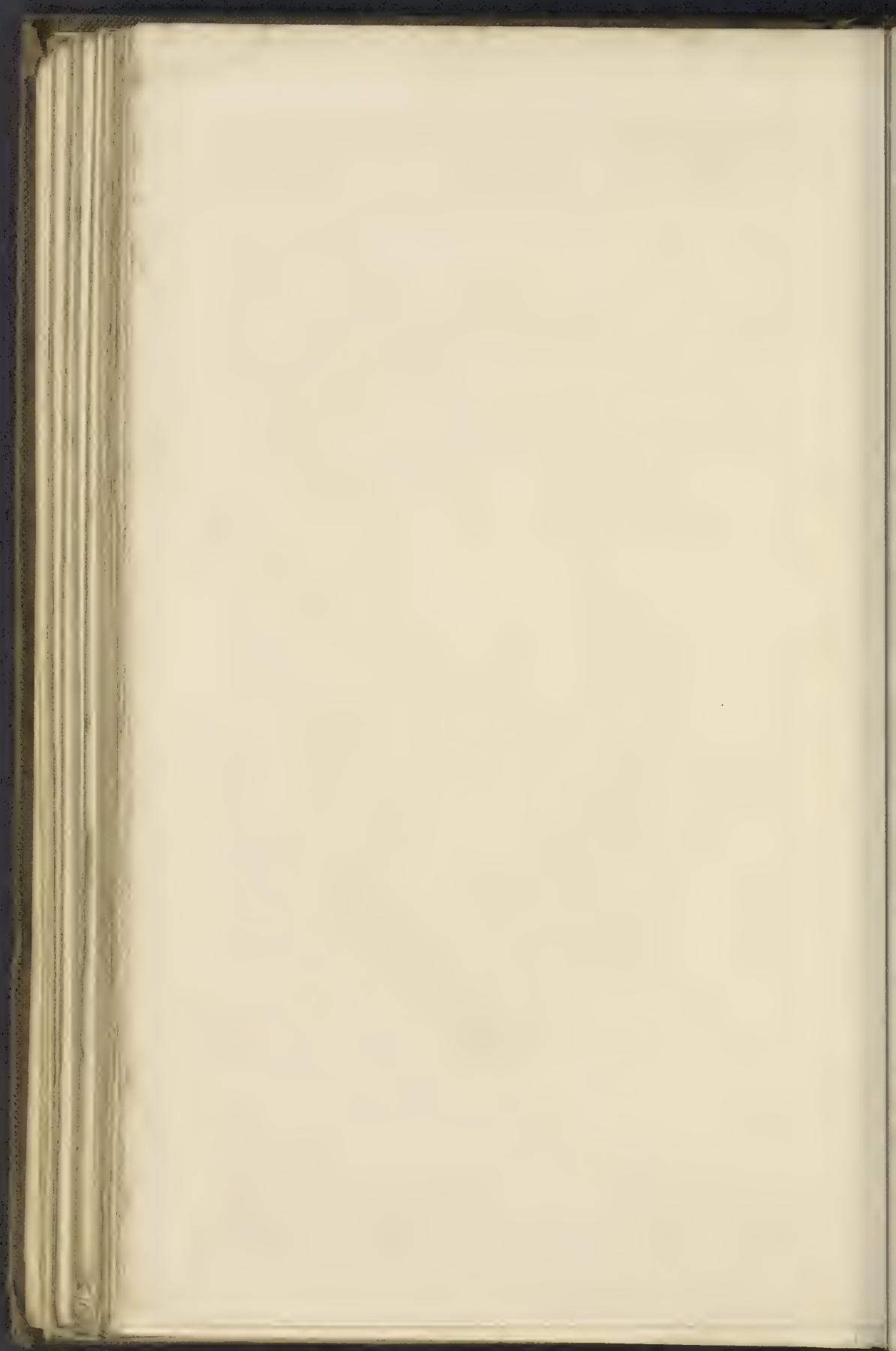


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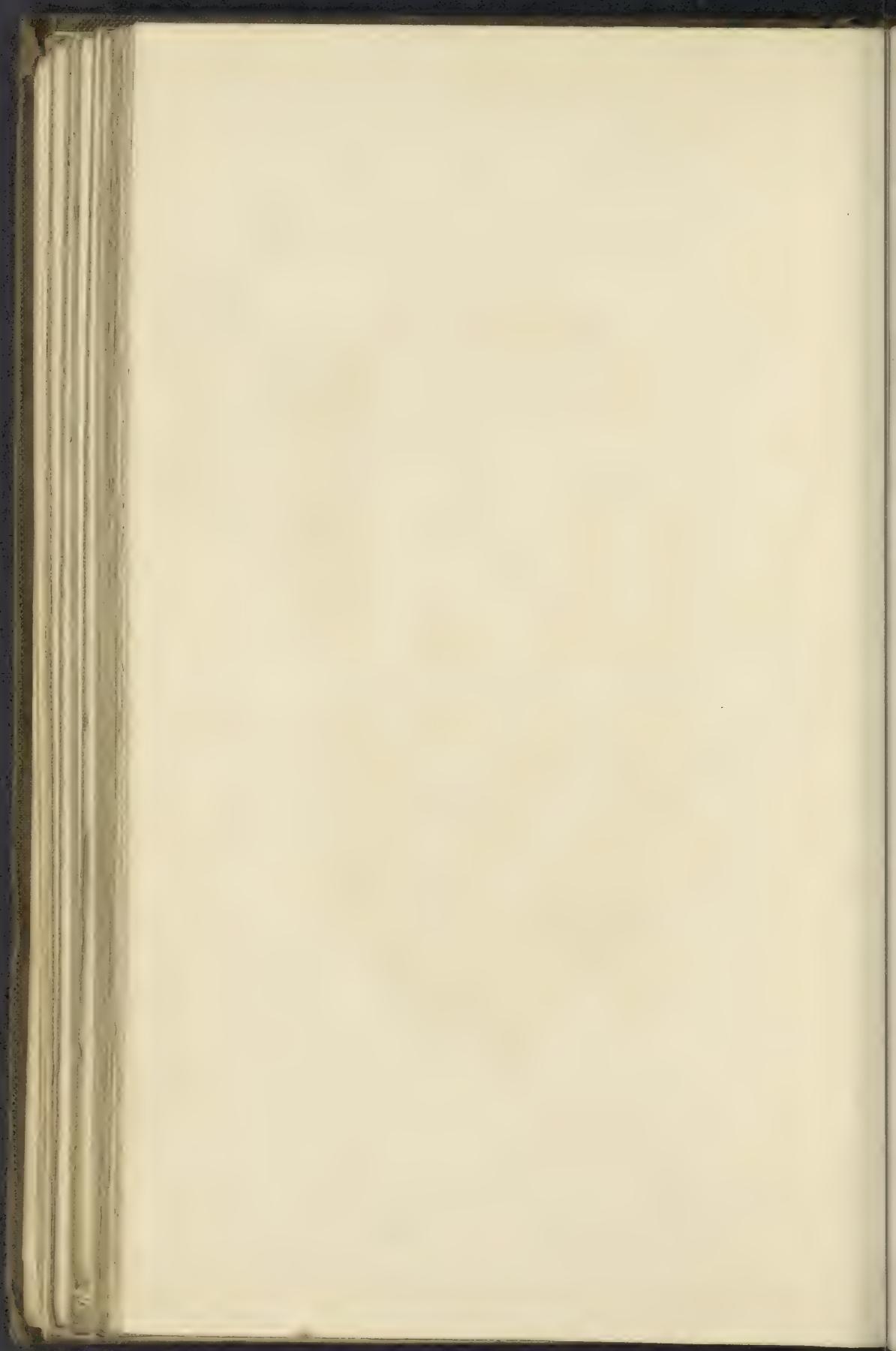




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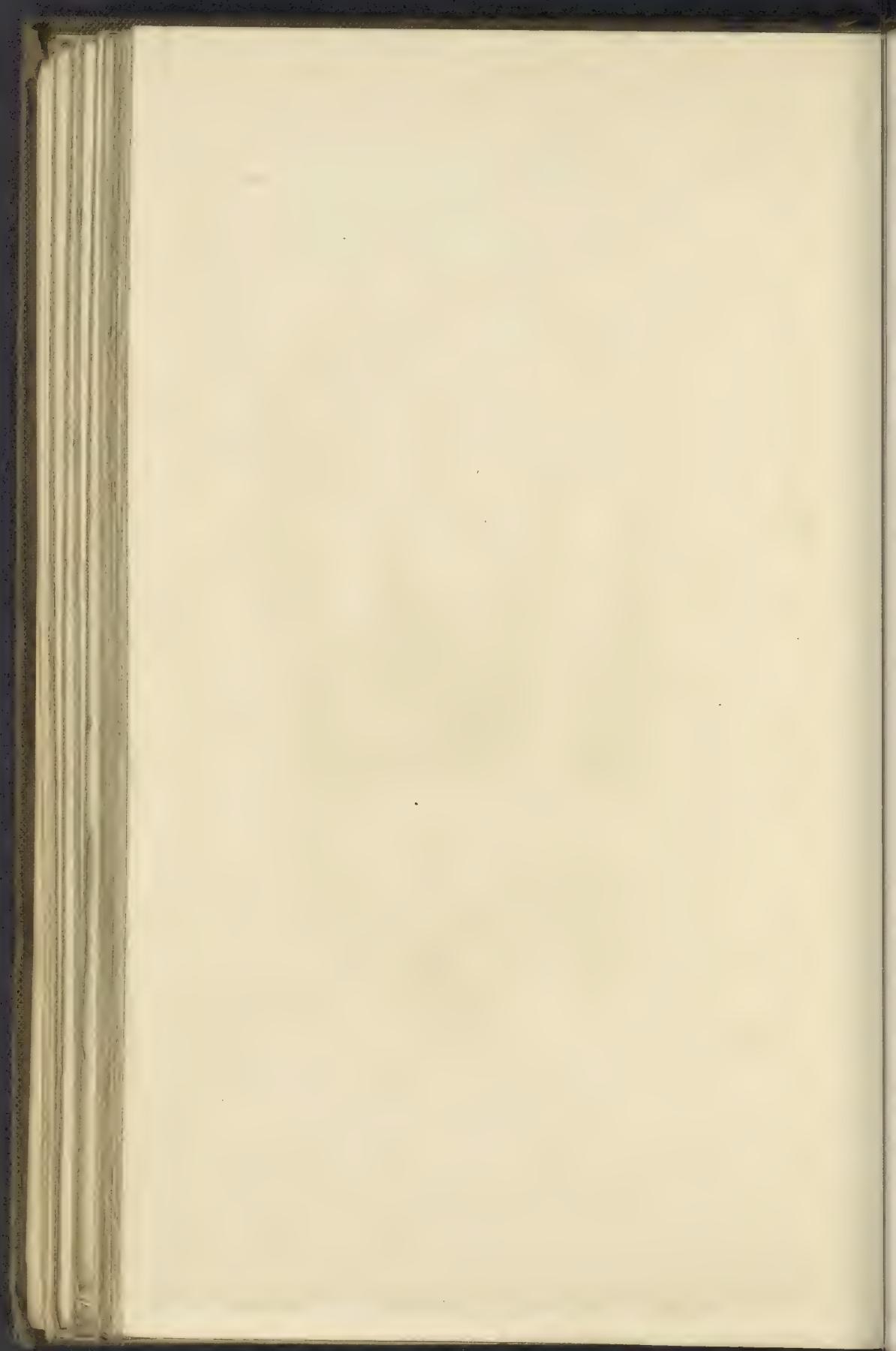




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Fig. 1.



Fig. 3.



Fig. 6.



Fig. 5.

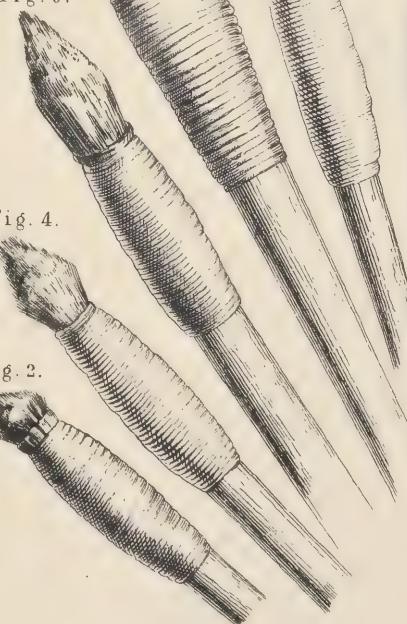


Fig. 4.

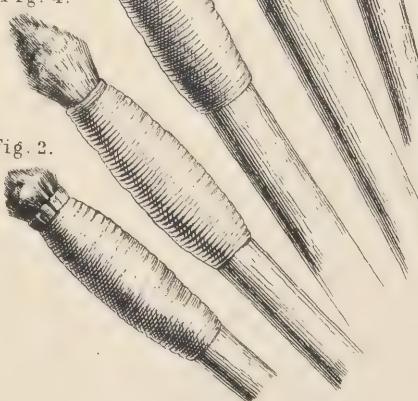
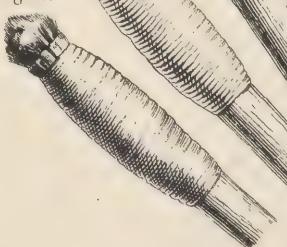


Fig. 2.





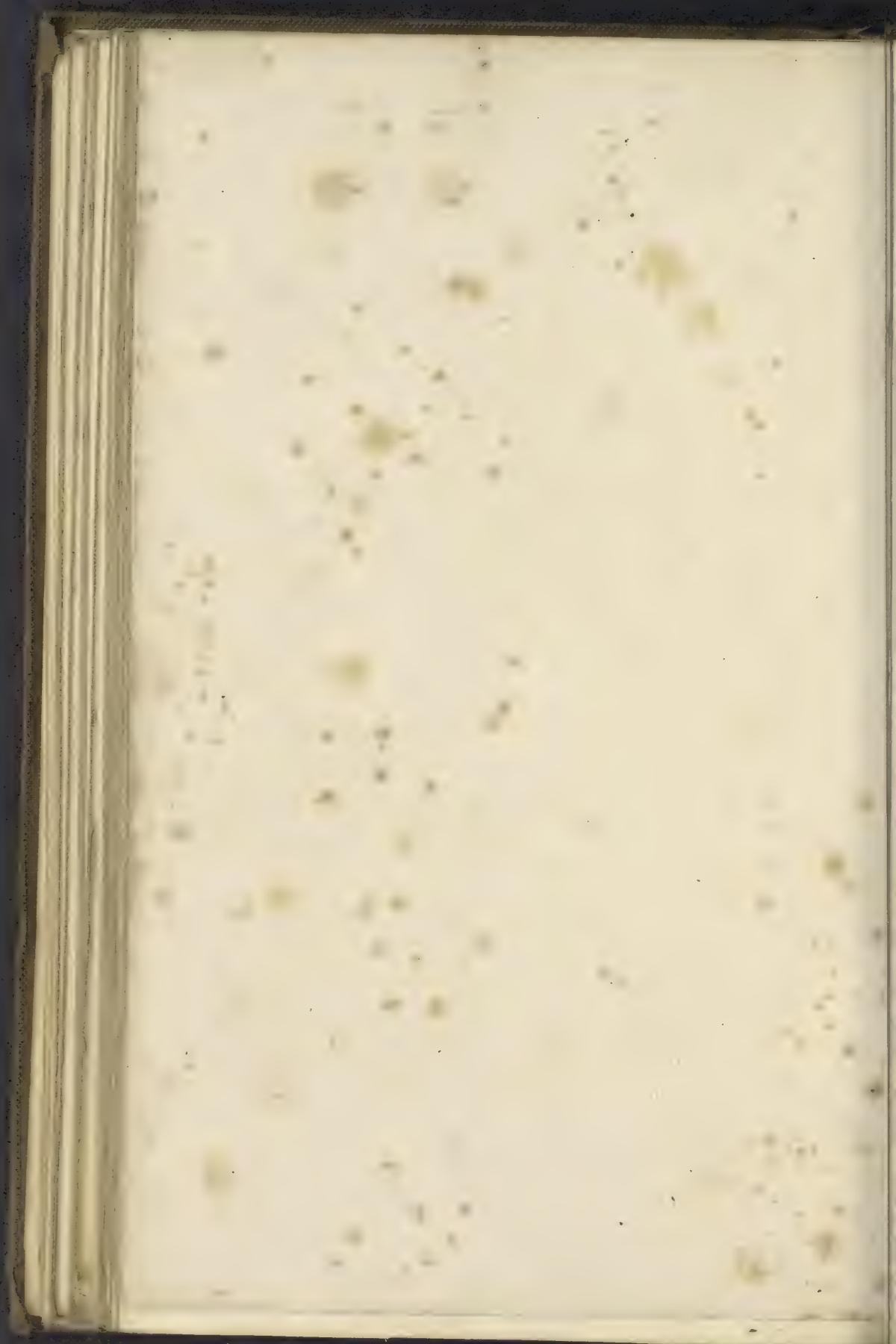
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## ANALYTICAL VIEW

### OF THE PRINCIPAL COMBINATIONS (MIXTURES) OF THE THREE PRIMARY COLOURS.

COLOURS.		WHOLE TONES.	HALF-TONES AND LIVING SHADE-TONES.				LIFELESS GREY AND BLACK.	
Primary Colours.	Secondary Colours of two Primary Colours of equal strength.	Whole-Tones from two Primary Colours of unequal strength.	Grey Tones of Two Secondary Colours of equal strength.	Grey Tones of Primary and Secondary Colours.	OPPOSITE TONES.		Primary and Secondary Colours with White.	Primary and Secondary Colours.
BLUE		Blue Blue Red } Blue-Violet	Green Violet } Blue-Grey	Blue Blue Red Yellow } Blue-Grey	BROWN TONES.	BLUE-GREY TONES.	Blue Red Yellow with White } Pure Grey	Blue Red Yellow } Black
	Blue and Red } Violet	Red Red Blue } Red-Violet	Violet Blue Red Yellow } Violet-Grey	Blue Red with Yellow-Red and Blue } Violet-Brown or Yellow-Red and Blue } Grey-Blue	Yellow with Blue and Yellow-Red } Yellow-Blue-Grey or Green-Grey	Yellow-Red with Blue and Yellow-Red } Orange-Blue-Grey or Orange-Grey		
RED		Red Red Yellow } Red-Orange	Violet Orange } Red-Grey	Red Blue Red Yellow } Red-Grey	Red with Yellow-Red and Blue } Red-Brown or Yellow-Red and Blue } Red-Orange-Grey	Blue Yellow with Blue and Yellow-Red } Green-Blue-Grey	Blue Orange with White } Pure Grey	Blue Orange } Black
	Red and Yellow } Orange	Yellow Yellow Red } Yellow-Orange	Orange Blue Red Yellow } Orange-Grey or Brown.	Red Yellow with Yellow-Red and Blue } Orange-Brown	Blue with Blue and Yellow-Red } Blue-Blue-Grey	Red Green with White } Pure Grey		
YELLOW		Yellow Yellow Blue } Yellow-Blue	Orange Green } Yellow-Grey	Yellow Blue Red Yellow } Yellow-Grey	Yellow with Yellow-Red and Blue } Yellow-Brown	Blue Red with Blue and Yellow-Red } Violet-Blue-Grey	Yellow Violet with White } Pure Grey	Yellow Violet } Black
	Yellow and Blue } Green	Blue Blue Yellow } Blue-Green	Green Blue Red Yellow } Green-Grey or Yellow-Blue-Grey	Yellow Blue with Yellow-Red and Blue } Green-Brown	Red with Blue and Yellow-Red } Red-Blue-Grey	Grey Dead Tones		

Pure Prismatic Colours and Tones.

The *opposites* of the above-named Colours and Tones, are accurately defined according to the law of the three Primary Colours.

These Tones have no received defined names. Some of them might receive two or three appellations, which, however, would have the same signification.

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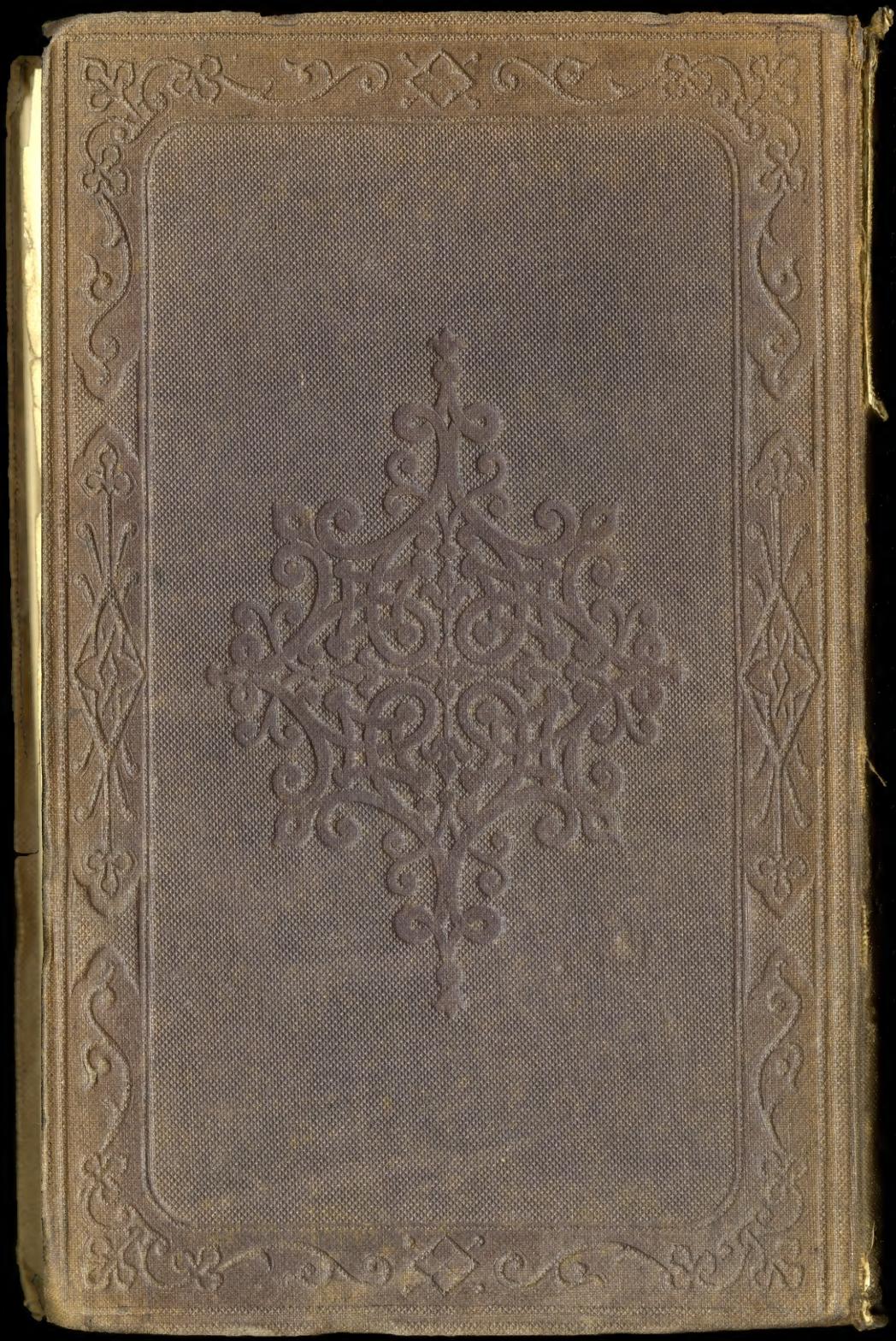


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The image shows the front cover of an antique book. The title 'RESTORATION HUNDERTPFUND' is embossed in gold-tooled lettering on a dark brown, textured background. The cover material appears to be leather or a similar material with a distinct grain. The gold tooling is worn, particularly along the edges, giving it an aged appearance. The title is divided into two lines: 'RESTORATION' on the top line and 'HUNDERTPFUND' on the bottom line. There is a small horizontal line or dash between the two lines of text.